Sir Theagaraya College

SWEETNESS AND LIGHT

BULLETIN

Monthly

June & July 1952

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COLLEGE HOSTEL BUILDING

Sir Theagaraya College

BULLETIN

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1921

Felicitations

We offer our sincere and heart-felt felicitations to those students of the College, who came out successful in the recent Intermediate Examination of the Madras University. It would be no exaggeration if we say that our honest labours were rewarded and our best hopes realised. The credit goes first to the students, who subjected themselves smilingly to the spartan regime that has prevailed in the Institution ever since its inception. Owing to the special difficulties confronting the students, who were overnight switched over from one medium of instruction to another, without provision being made for any kind of transition or adjusment by the educational authorities, special methods were adopted to acclimatize them to the College environment and intellectual atmosphere. As the College had to cater mainly to students drawn from backward classes, these methods were felt to be indispensable and hence relentlessly applied. In consequence, we could achieve 50 per cent of full passes in the University Examination, and 70 per cent of passes in each of the three parts; not to speak of Part II, where the passes were more than 90 per cent. Credit also goes to the teaching staff who regarded their task as a labour of love, and almost annihilated themselves in discharging their responsibilities to the satisfaction of all concerned. More than all, the benevolent and thoughtful Management of the College should be praised, for they placed the resources of the College unstintedly at the disposal of the Principal and staff, and thus enabled them to put into operation those special devices, without which standards could not have been maintained nor such excellent results achieved. But we are not going to rest content with our achievements. The Founder's spirit would rejoice only when the odious designation 'backward' disappears from the land, and when all irrespective of caste or creed or status enjoy the fruits of learning and scholarship, and become enlightened and progressive members of the Commonwealth we have established. To this end we strive, so that successes in all future examinations will be a hundred per cent, and likewise proficiency will be of an unchallengably high order.

We wish to say a word of consolation to the less fortunate. They should not be deterred by reverses, but should march on with unfaltering steps and with renewed vigour till the goal is attained. It is from these that the present Senior Intermediate students have to take a lesson, namely, that the battle is for the strong and the race is for the swift.

THUMB-NAIL SKETCHES

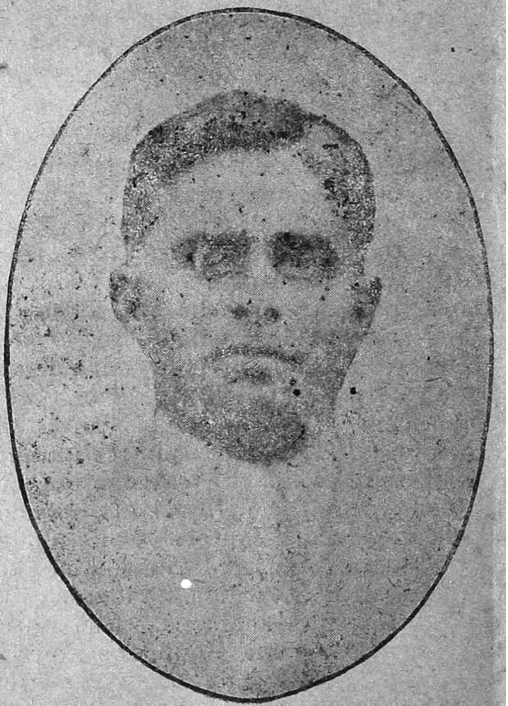
By

M. K. S.

Sri **T. R. Ramanujam**, B.A., B.L., a member the Managing Committee of the Theagaraya Chetty Educational Institutions, was born on the 15th of October, 1911. His father, late Rao Saheb T. Rajagopalachariar, was a distinguished citizen of North Madras. He was the Shrotriamdar of Edanur and an Honorary Presidency Magistrate. Sri Ramanujam was a student of the Theagaraya Chetty Middle School till 1924. He changed over to the Madras Christian College School and left the College as a full-blown graduate in 1932. After a two years' course at the Law College, he joined the Bar in 1935.

Mr. Ramanujam has been actively serving the public in various spheres. He has been a member of the Managing Committee of the Theagaraya Chetty Educational Institutions since 1942, and has worked indefatigably and devotedly for their progress and welfare. Girls' education in North Madras has claimed in fact the greater part of his attention. As the Hony. Secretary and Correspondent of the North Madras Hindu Girls' School, he has succeeded in putting the institution on a sound basis and is unceasingly labouring to turn it into a High School, for which the need is acutely felt. Apart from his educational activities, Mr. Ramanujam is an enthusiastic sportsman and is keenly interested in the furtherance of games like cricket, football and badminton. He has won a number of trophies in badminton tournaments. He has the honour of being the Life-Secretary of the Madras Excelsior Club, a premier Sports Club of Madras.

Having described his public life to some extent, we may now dwell on the personal qualities of Mr. Ramanujam. Simple and unostentatious in bearing and appearance, he moves freely with all. For a lawyer he is not aggressive in tactics or in advocacy. Rather he is suave and smiling, diffusing cheer and hope and at the same time disarming his opponent. Sri Ramanujam's forte is in administration. His knowledge and control of the financial side of it is admirable. Hence



his stewardship of the North Madras Girls' School has not only helped to augment its finances but also has paved the way for its future growth and expansion. It will not be long before Sri Ramanujam carves a niche for himself in the Temple of learning that is being reared in North Madras.

AT HOME AND ABROAD

By

T. D.

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Mr. Yehudi Menuhin, world-famous violinist, was in our midst recently to give a series of recitals in aid of Prime Minister Nehru's National Relief Fund. His impressions about India and Indian music are worth recording.

"Indian music requires more concentrated meditation, a more introspective element. It requires an audience to forget about time and material achievements and a complete clearing of the mind. This is an attitude difficult for a Westerner. An Indian audience accustomed to appreciate the slightest inflections on the other hand provides a good audience for a western musician......I hope that Indian music and western music would never regard each other as competitive. I suggest that there should be one institution in India where western music is properly taught for those who are interested in it....I have not found in any other nation in the world such natural, traditional and instinctive feeling for the high principles of morality· I have not found those principles ingrained so deeply in a whole population as in India".

It is refreshing to note that Mr. Menuhin, one of the outstanding exponents of western music, should be all praise for eastern music. This is as it should be. For the very keynote of culture is a catholic comprehension of all that is True, Good and Beautiful. irrespective of the barriers of time and place, creed and race. Only the philistines among us will hold that all their geese are swans. Are we not familiar with Kipling's.,

East is East
West is West;

And the twain shall never meet.

We will not sin in the company of this arch-priest of imperialism. We would fain amend his lines as follows :

East is East
Westi s West
East plus West
Is much the best.

Everywhere we hear of tension between East and West. This tension, if allowed to mount, would spell the doom of civilisation, built through the ages. Neither scheming diplomats nor sabre-rattling generals can ring out the dogs of war and ring in the doves of peace. It is only cultural ambassadors of the calibre of Mr. Menuhin that can knit the two hemispheres together in unbreakable bonds of faith and fellowship. May their tribe increase!

* * *

We have been consistently maintaining in the columns of this Bulletin that popular esteem reinforced by official recognition would be a good stimulant to creative work. We have also been forecasting that our National Government, would ere long live down their initial prejudice against awards and titles and recognise our talented artists, scientists and savants. We were not false prophets. The Government have now instituted a system of awards for honouring musicians of acknowledged eminence. What was a function of royalty in the past is now being discharged by popular governments. Our Rashtrapathi recently honoured two Carnatic aud two Hindustani musicians. While heartily congratulating the recipients, we venture to express the hope that the action on the part of the Govt. will fire the ambition of the rising gereration of musicians and spur them on to the unwearied pursuit of excellence.

A great artist is the mirror of his country's genius. Not all "the wealth of Ormuz and Ind" would be equal in value to the lustre he sheds on his nation. He is a rare possession,

a priceless human treasure. Once Mozart, the celebrated Austrian composer, was invited by the Austrian emperor to dine with him. He sat in the company of persons of high rank and moved freely with them. Certain courtiers hinted that some generals might be offended at his free behaviour. "Leave Mozart in peace," said the Emperor, "I can create a general every day, but I cannot create a Mozart"

* * *

Our Puranas tell us that, whenever virtue subsided and vice triumphed in the world, the Rishis went to the 'Tiruppakadal' and beseeched 'Thirumal' to descend to the earth as an 'avatar' and re-establish the reign of Dharma. Counterparts to this have not been wanting in this mundane world. Whenever there is "something rotten in the state of Denmark," whenever there are Augean stables to be cleaned, the people implore the wisest and the best among them to come to their succour. Ancient Athens implored her Solon to set her house in order. Eighteenth century England was engaged in a grim duel with France. She was meeting with reverses everywhere and her future was hanging in the balance. It was at such a critical juncture that she voted Pitt the Elder to power. "I am sure I can save this country, and nobody else can"—was his legitimate boast. He not only saved England but placed her on the road to imperial greatness.

These observations have been provoked by what has happened recently in our State. The Congress Pary in Madras, after the recent general election, very much resembled a storm-tossed vessel without the captain at the helm. What with angry waves and hungry whales, howling winds and hidden rocks, it was feared that the vessel would be lost. But the hour produced the hero. In response to the plaintive appeals of his party-men, the great Rajaji has emerged from the serene field of the Muses into the stormy region of politics. A great advocate and a greater judge, a great politician and a greater statesman, a great scholar and a greater seer, he has made unique contributions to our national progress. The unanswerable logic and the unquestioned probity the matchless erudition and the peerless patriotism of this great tribune, this redoutable lieutenant of Mahatma Gandhi, would serve as guiding stars in the gloom that encircles us.

* * *

The Rajah of Ramnad is the Minister for House Rent Control in the Rajaji Ministry. At a reception given to him in his home-town of Ramnad, he made the following observation:—

"I have my own bungalow. I will not need any govt. quarters. I am here to solve the problems relating to housing, not to add to them.....It shall be my constant endeavour to give to society more than what I take from it".

Auguste Comte invented the word 'altruism', which means 'for others'. The ultimate end of all moral action is the welfare of others The Rajah's observation is a purple patch, a gem of altruism.

* * *

The Patiala East Punjab States Union, better known as PEPSU is a part of the Indian Union. Here, as elsewhere, parliamentary democracy has been introduced. But it pains us to note that PEPSU has not placed her best foot forward. The Congress Ministry headed by Col. Raghbir Singh was sworn in on 19th March in the teeth of opposition offered by Sardar Gian Singh Rarewala, leader of the United Front Party. The Ministry came a cropper on the very first day it faced the Assembly. Sardar Rarewala has now formed a new ministry.

Mutual recriminations and petty squabbles have been the bane of our public life. The unedifying scenes enacted on the floor of the PEPSU Legislative Assembly on the occasion when the Rajapramukh addressed the members filled us with deep concern Let us hope that the fire of republican nationalism will burn away all that is mean and melancholy in our social and political life.

* * *

The Rayalaseema is in the vicious grip of a famine. The army has been called in for the purpose of constructing roads and deepening wells The army could not have been utilised to better purpose Army means war and war means bloodshed. The better mind of man has always recoiled with horror from the monstrosities of warfare. From time immemorial there has been a crusade against war, culminating in Woodrow Wilson's resounding slogan of "war to end war". War may, at no distant date, become an outmoded device. But we will not banish war altogether from the scheme of human affairs. We vote for a war against disease, a war against ignorance, a war against want.

* * *

Ceylon has been an appendage to India in more senses than one. Indian labour has been largely instrumental in promoting the economic prosperity of the Island. She has become a full-fledged dominion and the mistress of her household. But in the hour of exaltation she is betraying an attitude of melancholy meanness Indians, who have lived there for generations, have been denied the primary democratic right of franchise. The Ceylonese will have all the loaves and fishes of office; the Indians will be the hewers of wood and drawers of water. What is essentially a problem in just human relationship is being explained away in terms of legal quibbles. The great warning of Burke, viz. 'Great empires and little minds go ill together' has a perennial freshness about it.

* * *

Dr. Malan, the South African Premier, is the high-priest of 'apartheid'. His law placing the coloured voters in a separate list was declared unconstitutional by the Supreme Court of South Africa. This courageous judgment has touched off a constitutional crisis. Though vanquished, this pinchbeck Hitler can argue still. He is bringing forward a measure creating a High Court of Parliament with power to set aside any judgment of the Supreme Court on any legislative measure of the South African Parliament.

This manifest violation of human rights in an important Commonwealth Country cannot go on unchallenged. The Universal Declaration of Human Rights, so solemnly proclaimed amidst a flourish of trumpets, cannot be treated by Dr. Malan and Co as a scrap of paper. We know that the Doctor, who is a Bourbon to his finger-tips, will not retrace his steps. But the U.N.O. which is the sheet-anchor of world peace and the guardian of human rights, should take up cudgels in the matter. We appeal from Philip drunk to Philip sober.

We understand that Dr. Malan is a Doctor of Divinity. We cannot resist smiling. The churchmen of the later Middle Ages were anything but godly in their lives, so much so they were stigmatised as "unholy men in holy orders". We have half a mind to fling this expression at this South African Doctor of Divinity.

* * *

Korea, Iran and Sudan have made the international situation quite tense. The latest headache is the Tunisian problem. Unfortunately, the erring power in this case is France, the birth-place of Diderot and D' Alembert, Voltaire and Rousseau. Indo-china, Morocco, Tunis and Pondicherry are blots on her escutcheon. The imperial attitude in international politics is as dead as Queen Anne. Would France act in consonance with the spirit of the age? Worship the highest when you see it—is an eternal Biblical truth.

* * *

Michiro Fuwa, a Japanese inventor, has devised the world's first pick-pocket alarm as a protection against swarms of pilferers who are active in the crowded Tokyo trains. The midget machine is linked by an electrical circuit to the wearer's wallet. While travelling in a half-empty train he took the alarm from his pocket to show it to a friend. Then placing it on the seat, he dozed off. When he woke up, not only was his wallet missing from his pocket but also the disconnected alarm.

This reminds us of a Puranic story. Padmasura had performed a sustained 'tapas' and obtained from Lord Siva a boon to the effect that any person on whose head he placed the palm of his hand should be burnt to ashes. The Asura wanted to test the efficacy of the boon on the great God himself. The frightened Siva ran for his life. The rest of the story is not germane to our purpose.

* * *

We regret to record the deaths of Dr. Maria Montessori of Italy and Dr. John Dewey of America. Two of the greatest educationists of this century, they exercised a profound influence on educational policy. They died full of years and honours.

* * *

One Haridas Saha, a 22 years old Bengali youth, had been fined by the Calcutta customs. He went to Delhi and saw a few Members of Parliament to seek redress. Not being successful, he decided to set fire to the Parliament House. He was apprehended in the Corridor of Parliament House with a bottle of petrol in his hand. He has been tried and sentenced to 18 months R. I.

Brave Haridas Saha resorted to an original—or is it aboriginal—device to vent his spleen. This Indian Guy Fawkes would burn a house to roast a pig.

* * *

Since our going to the press, the Rajaji Ministry has introduced two measures, viz· decontrol of food and grant of educational concessions to the children of non-gazetted officers, local fund employees and teachers in aided schools.

Decontrol of food is certainly a bold measure. When asked to assign reasons for the step he has taken, Rajaji replied. "My intuition, not economic factors, is responsible for this measure". Critics may attack the intuitional economics of the Chief Minister. But a tree is judged by its fruit. The decontrol measure is proceeding according to plan and no ugly manifestations have come to light. We hope that the measure will be an unqualified success.

The second measure is unexceptionable. The children of the officers referred to above will pay no tuition fees from I Class to III Form and half tuition fees from IV to VI Form.

The canons of public expenditure have not been observed in this case, for the Govt. have not worked out the financial effects of the proposal. But Rajaji says: "The cause is good and I do not mind the cost". We respectfully agree.

* * *

We are very glad that Sri K. Venkataswami Naidu, one of the members of our Board of Management, has been included in the Rajaji cabinet. A man of pious disposition, he has been appropriately assigned the portfolio of 'Religious Endowments', He brings to his task a spotless character and single-minded devotion to duty and would prove himself to be a valiant colleague to the Chief Minister in his crusade against want and woe.

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CHARACTER OF SAMUEL JOHNSON

By

M. K. S.

Samuel Johnson is one of the English immortals. He is great not because he is a writer but because he is a man among men. No doubt he embodies the virtues as well as the weaknesses of the island race. But there are very few Englishmen to compare with him. His only equal if not his superior is Shakespeare. Both of them have become national institutions to be adored and loved by their countrymen and to be respected and honoured by foreigners. Johnson's greatness especially lies in the art of living, which he mastered. He illustrated in his own life the saying, "It matters not how a man dies, but how he lives". Thanks to Boswell, we know intimately the rich and full life Johnson lived as we know those of very few Englishmen.

Singularities: Johnson was lovable in character but not in appearance. He was afflicted from birth with the scrofula, Therefore his face was disfigured. His optic nerves were also affected so that he was almost blind of one eye. Besides he suffered from another constitutional disability namely his morbid melancholy. It gave rise to many of his eccentricities. It plunged him often into fits of gloom and despair, and made existence a misery. Above all he cultivated a habit of indolence, which made him averse to regular life and systematic work. One of the singularities in Johnson's behaviour was his habit of rocking his body to and fro, and of making various sounds with his mouth. He would say under his breath 'too, too, too', or he would blow out his breath like a whale. No wonder Johnson was nicknamed the bear. Yet women were attracted to him. The most prominent among them was Mrs. Porter. She fell in love with him and married him because 'he was the most sensible man' she had met. In the same manner his intellectual powers fascinated Mrs. Thrale.

Scholarship: Johnson was a born scholar. He had the additional advantage of studying all the books in his father's book-shop. Even at school, his genius was recognised by teachers and fellow students. He was regarded from his earliest days a king among men. His fellows at school chaired him every day. His scholarship provided the standard for measuring the scholarship of others. At college also, Johnson's intellectual superiority was acknowledged by the masters. One of the learned Oxford dons remarked 'I was his nominal tutor; but he was above my mark.' Johnson's learning and mastery of the English language were revealed in the Dictionary of the English language he composed single-handed. Besides his other literary productions namely, 'London', 'Vanity of Human Wishes', 'Rasselas', 'Rambler', and 'Irene' brought him fame. He became the supreme dictator in the world of letters eclipsing Lord Chesterfield. His independent nature and intellectual pride made him defy his lordship and save his fellow-authors from the humiliation of hanging on Patrons like Chesterfield. Johnson's leadership in the world of letters was recognised by His Majesty, who sought an interview of him.

Prejudices: Johnson was a man of strong likes and dislikes. And he gave expression to them frankly and fearlessly. His prejudices had always a political background. He was an out and out Tory. And therefore he disliked all those who belonged to any other school of politics. He showed his prejudices against the whigs by giving a strange meaning to the word in his dictionary. He called them

'a faction'. His prejudice against the Jacobites was also revealed in the dictionary. He went out of the way to illustrate the word 'Renegado'. He dragged in wilfully the name of one of his political opponents 'Lord Gower'. Johnson's prejudice against the Scotch became proverbial. In his love for England and the English people, Johnson cultivated an extreme dislike for non-Englishmen particularly Scotchmen. And he lost no opportunity to ridicule the Scotchmen. Since his admirer Boswell was a Scotchman, Johnson took liberities with him and cut many jokes against the Scotch. He made fun of them for leaving their home country and migrating to England for livelihood. In his dictionary particularly he made cruel sport of the Scotchmen. Defining 'oat' he said it is a grain eaten by horses in England and men in Scotland. Johnson was prejudiced against the French whom he regarded as an unclean people. As a conservative, Johnson hated republicans. He exposed the hypocrisy of a republican named Mrs. Macaulay, who wanted only a levelling down and not a levelling up. Johnson was a respector of tradition. He believed in rank and subordination. He worshipped royalty and renovated aristocracy. Sometimes Johnson's prejudices melted away in the warm love he showed to his fellow-beings. He loved Boswell in spite of his being a Scotch. He became a good friend of Mr. Wilkes, though the latter was an uncompromising whig. His heart went out to the common people in their distress, and he shared their troubles and misfortunes.

Commonsense: Johnson lived in the age of reason. Therefore his approach to life was always rationalistic. He applied his commonsense and offered simple solutions for the problems of life. Speaking of the conflict that often arises between a father and son, Johnson says calmly that it is due to the fact that one aims at power and the other at independence. And he goes on to say that the son cannot be compelled to do anything against his own wishes. He quotes the proverb "One man may lead a horse to water, but twenty cannot make him drink". Advising Boswell on married life, Johnson said 'Do not expect more from life than life will afford'. Talking about eating, Johnson remarked happily. 'If a man does not mind his belly he minds nothing else'. Again he said refreshingly 'I hate by-roads in education.' Johnson being a realist hated the idealism of Berkeley and made fun of the 'inward light' of Wesley. In short he was a philosopher of the world rather a commonsense philosopher. Therefore his sayings and views were a source of information and entertainment to the common people. To quote his words 'I am a man of the world. I live in the world, and I take in some degree the colour of the world as it moves along.' Johnson in his commonsense approach to life hated all humbug and hyprocrisy. His extraordinary love of truth and sincerity made a hero of him.

Conversation: If Johnson shines as a heroic man of letters, it is because of his unique power of conversation. He was a prince among talkers. He made it an art. It is his love of club life and society that enabled him to perfect this art. He talked brilliantly and there was a fund of worldy wisdom in his talks. His words went straight to the heart. Above all they were enlivened by a rich infectious humour born of his humanitarian nature. People hung on the lips of Johnson forgetting the oddities of his appearance, and the eccentricities of his behaviour, because of the golden stream of conversation that flowed from him, in which they plunged and bathed for pure joy. His witticisms and wisecracks set the table roaring with applause. For example when he turned the joke against Mr. Ogilvie, the Scotchman by saying "The noblest prospect which a Scotchman ever sees is the high road that leads him to England", his audience burst into peals of laughter. Johnson's conversation was a tonic to his hearers. It helped them to drown their cares and worries in the joys of living. Thus the sage of Lichfield set an example to his fellowmen as to how life should be lived.

THE POUND OF FLESH

By

M. K. S.

Shakespeare, the master artist, has woven several stories into the plot of his play 'The Merchant of Venice'. The most important story, in which the hero plays almost a tragic part, is the story of the Bond, otherwise known as the story of the Pound of Flesh. Shakespeare's drama has not only immortalized the phrase but has also given it a sinister meaning. To claim the pound of flesh, as Shylock the Jew claimed it from Antonio, means to exact the utmost penalty from the opponent, or demand the forfeiture of his life.

The origin of the phrase *a pound of flesh* is not easily traceable. This much is known that in ancient times to offer or claim a pound of flesh as wager or penalty was common practice. The sacrifice of the flesh was not only deemed sport but was also done in earnest. According to the *Mahabharata,* one of the greatest of Indian Epics, a certain king offered his flesh, nay his life finally as sacrifice, to save the life of a dove.

The Bond, entered into between Shylock and Antonio, stipulating that the latter should allow the former to cut off a pound of flesh from any part of his body, if he did not pay back the loan in three months' time, was not an uncommon bond in those times. The Jew, instead of claiming principal and interest, wanted the pound of flesh, because it was the only means of taking the merchant's life and satisfying his own thirst for revenge. The Jew tried to mask his revenge by calling it a merry bond. The terms of the bond did not evoke any comment either from the notary, before whom it was sealed, nor from the Judge, when the Jew complained against the Merchant. In short every one conceded the legal right of the Jew to claim the pound of flesh. Naturally, when the Jew pressed his claim, the magnificoes of Venice including the Judge, could only plead with the Jew to forego his claim and spare the life of the Merchant.

Of course, in the Trial Scene the Jew was baulked of his clain by a legal quibble. It is very strange how the Venetians could indulge in such a quibble, when they were scrupulous about the interpretation of law and the dispensation of justice particularly to foreigners. In fact the law was cheated by the most fantastic and childish interpretation that was put upon the cutting off the pound flesh, namely cutting the human flesh without shedding a drop of blood.

However we are not here concerned with what is called the travesty of law in the Trial Scene. We have to let our imagination work upon this scene for a while. Granting that the Jew was entitled to his pound of flesh, and the court had allowed it, how could the Jew have gone about his task. He would not have plunged the knife he was sharpening on his 'sole' straight into the heart of the Merchant. That would have amounted to man-slaughter. He was only to carve an amount of flesh from nearest the Merchant's heart, equivalent in weight to a pound. Just as the Jew was no murderer, though he brandished the gleaming knife in his hand, he was also no nice carver of human flesh. Even if he had set about it, he would have bungled it, and wounded the Merchant mortally. The question is whether he would have relished the carving work, however fiendish he might have been, especially when the whole court was looking on.

It is this train of thought that is unleashed, when one tries to follow the story of the pound of flesh to its logical conclusion. But we notice here the supreme genius of Shakespeare turning what threatens to be a cruel tragedy into a comedy. A drama is full of delusions just as life is. The Jew hugged the delusion thar he would kill the merchant and feed fat the ancient grudge he bore against him. Not only did he brandish the fateful knife, but also was ready to spring like a wild beast upon his victim. But this was only a dream, and he was rudely awakened from it to find himself pleading for his own life at the hands of the Judge. Shakespeare chose to emphasize the futility of man's cherished desires and the fluctuations of his fortunes by means of the elusive dramatic art he practised, which is the art of make-believe.

2 - JUN 1955
MADRAS

'TREASURE ISLAND'--A NOVEL OF ADVENTURE

By

M. Sreeramulu, M.A., L.T.

There are two well-known types of novel—the novel of character and the novel of incident. The very first novels in English were only stories pure and simple and Chaucer, whom some critics call the first of the English novelists, was a story-teller par excellence. But even Chaucer has given us beautiful character sketches and his nine and twenty pilgrims who set out from the Tabard Inn are very much alive to those who have met them in the pages of the Canterbury Tales. Graudally novelists began to give greater prominence to character delineation and in Richardson's 'Clarissa Harlowe' we see the first glimpses of later day psycho-analysis. But even in Richardson's day there was a rejoinder in the form of Fielding's 'Adventures of Tom Jones', which was a picaresque novel or a novel of adventure. The modern tendency is all in favour of the novel of character but the novel of incident has still its own value, for it serves the useful purpose of keeping the children from their games at odd moments and helping the grown-ups to pass a weary hour by the chinney corner. Stevenson's 'Treasure Island' is without a doubt a novel of incident. The author meant it as a book primarily for boys and there can be no question that as a story-book it is an unqualified success. It has thrilled many a youngster and thrown open before him vast vistas of mysterious islands set in the middle of sparkling seas, where pirates search for hidden treasure and kill one another in their greed for gold.

In 'Treasure Island' Stevenson succeeds wonderfully in what he attempts to do. The origin of the story itself is some what peculiar. Having drawn the map of an island in great detail for the amusement and edification of his foster-son, Stevenson set about writing a story with the strange island as the most important scene of action. Therefore it is that 'Treasure Island' treats of murders, mysteries, islands of dreadful renown, blood-thirsty pirates, hairbreadth escapes, miraculous coincidences and buried doubloons. It is a book which no one can lay down without reading right through once it is picked up. It grips the reader's attention from the first page to the last and thousands would bear witness to the fact that they have read it at one sitting. This is not to say that Stevenson pays no thought to depicting character. He is a master in painting pen pictures with a few deft strokes. He seems to practise economy of diction in this respect. But his readers can easily conjure up before their mind's eye many of the characters of his stories. For instauce the daring but wayward little Jim Hawkins, the loud-voiced Squire Trelawney demanding implicit obedience from every one, the mild-spoken Doctor Livesey who can rise to any occasion and above all the cunning Long John Silver who can fly a sail to suit any wind—to mention only a few of the horde of Stevenson characters—can be easily imagined even by the casual reader. In spite of all this the chief feature of 'Treasure Island' is the story. From the moment we hear the blind beggar tapping his way through the dark with his crutch to the 'Admiral Benbow' the plot proceeds at a breath-taking pace through many complications till it reaches its conclusion with the discomfiture of the greedy pirates on the strange tropical island.

'Treasure Island' is essentially a novel of adventure. Adventure is the mainspring of the action. From the moment Jim Hawkins discovers the map of the mysterious island in Bill Bones's chest the plot thickens. All is bustle at Bristol where the Squire equi s the schooner 'Hispaniola' to set sail to the sland

with the fabulous treasure. On board ship the conflict between the possessors of the map and the pirates in disguise led by the intrepid Long John develops with young Jim playing the key role of intelligence officer to the former party. On the island itself the pirates come out into the open but the Squire and his men, digging themselves in in the stockade, hold the fort against great odds. Soon Jim goes on his own, chances upon the two drunken sailors on the Hispaniola, escapes from the very jaws of death and helped by Providence succeeds in bringing the ship safely to anchor in the creek. However, in a short time he walks in to the enemy's parlour and Silver's parrot screaching, 'Pieces of Eight', 'Pieces of Eight', gives the alarm to the drunken pirates. The treasure hunt starts and the greedy sailors are well on their way, when the shrill, tremulous voice of Ben Gunn singing Captain Flint's famous refrain, curdles their blood and strikes terror into their hearts. Recovering their lost spirits the pirates press on and are soon digging the sand for missing doubloons. They are surrounded and overpowered and their discomfiture is complete. Such is the plot of 'Treasure Island' and as a story of adventure it is unrivalled, if not unsurpassed.

Stevenson played the sedulous ape to great masters of English narrative style like Scott. He might have modelled some of his stories on Scott's novels and even 'Treasure Island' might owe some details to 'The Pirate'. But whatever he touched he made his own. For instance in plot construction he follows a method totally different from Scott's. His stories jump into action from the very beginning. The story-teller does not spend time in giving either an introduction or a background to his narrative. He proceeds straight to the point and unfolds the plot with remarkable speed and skill. Not so Scott. His stories pass through a rather dreary beginning. They take several pages of descriptive writing before they gain momentum. Again there is a total lack of the love element in most of Stevenson's stories. The triangular relationship between men and women which engenders much heat and passion in Scott's novels is conspicious by its absence in Stevenson's Books. It is not as if Stevenson is averse to the introduction of this element in his plots. For when he attempts to do so, he succeeds wonderfully. For *instance* his *Catriona stands comparison* with many of the popular heroines out of story-books and novels. But when all is said and done Stevenson's forte is the novel of incident or adventure. His *mastery of narrative style* enabled him to write stories which answered best the question 'What next?'. So his 'Treasure Island' is one of the most popular of boys, books.

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திருவள்ளுவ மாலை

வித்துவான் K. சந்திரசேகரன், M.A., B.O.L., B.T.

(தமிழ் விரிவுரையாளர்)

கலையுணர் புலமையிற் றலைமையோ ருகி
விதிமுறை வழாஅது முதுநிலம் புரக்கும்
பெருந்தகை யுக்கிரப் பெருவழுதி யென்னுந்
தன்னிக ரில்லா மன்னவர் பெருமான்
வந்திக்க சென்னிவாய் வாழ்த்துக நன்னெஞ்சஞ்
சிந்திக்க கேட்க செவியென்னு நூன்முறை"

யைப் பழுதற்ற முத்தமிழ் வித்தகர்கள் வியந்தும் நயந்தும் விளம்பிய பாடல்களின் தொகுதியே திருவள்ளுவ மாலையாகும். இஃது முப்பாலின் வரலாற்றினை வளம்பட வுரைக்கின்றது. யாங்ஙனமெனின், சொற்பொருணயங்களாலே இன்பம் விளைத்துத் தெய்வத் தன்மையால் பயில்வாரது வினைத்துயரொழிக்குமாறும், இம்மை மறுமை வீடுகளைக் குறித்து உணர்தற்குரிய வுறுதிப் பொருள்களைக் குறைவின்றி யுணர்த்துமாறும், உலகத்து வாழ்வோர் பலர்க்கும் உறுதுணையாய் நின்று அகத்திருள் கெடுக்குமாறும், இஃதொரு நூலோதி யுணர்ந்தோர் அருமறைகளைந் துஞ் சமய நூலாறும் ஓதிய பயன் பெறுதலும், வடமொழியொடு தென்மொழிக்கு ஒப்புமை நிறைத்து நிற்றலும், இந்நூலைக் கொடுப்போர்க்கும் கேட்டொழுகுவோர்க்கும் விழுமிய பயனுளவாதலும், எப்பொருளும் யாவரும் இயல்பினறிவுறச் செப்புதல் வேதத்திற்கின்மையான் அதனினும் மிக்க மொழியாதலும், சின்னாள் பல்பிணிச் சிற்றறிவினோர்க்கு விதிவிலக்குகளை முற்றும் உள்ளங்கை நெல்லிக்கனி போல் கண்டு தெளியுமாறுணர்த்தித் தடுமாற்றந் தீர்க்குமாறும், முன் காணப்பட்ட பொருளினும் பின் காணப்படும் பொருள் சிறந்தும் விரிந்தும் தோன்றுதலால் பொருளாராய்ச்சிக் கேற்ற நுண்ணுணர்வுடையாரை யுள்ளுதொறுள்ளுதொறுள்ள முருக்கும் அற்புத குணமுடையதாதலும், மனமொழி மெய்களின் மாசு தீர்ந்து உயிர் நற்கதி சேறற் கேற்ற முப்பால் மருந்தாயுதவும் அருமையுடைத்தாதலும், வேதத்திற்குட் பட்ட சமயத்தாரே யன்றிப் புறப்பட்ட சமணம், பௌத்தம் முதலிய மதத்தாரும் பல வகைப்பட்ட சாதியாரும் தேசத்தாரும் காலத்தாரும் பிறரும் விரும்பித்தழுவும் தகுதியுடையதாதலும், அனைத்து அறநூல்களுக்கும் பிற்பட்டுத் தோன்றிய முறைமையால் வாக்கியப் பிரமாணத்தில் மிகச் சிறந்திருத்தலும், அறிவு நூல்களில் இலைமறைகாய் போல் பலவிடங்களிலும் மறைந்து வெளிப்படாதிருந்த மெய்ப் பொருள்களை யெல்லாம் தொகுத்து உலகத்தாருக்கெல்லாம் ஊழினுதவும் வண்மையுடைத்தாதலும், ஒவ்வொரு குணத்தினாலே சிறந்து விளங்க நூல் செய்தமை போலன்றி, இவரொருவரே எல்லாக் குணங்களாலும் நிறைந்து சிறந்து விளங்க இந்நூலைச் செய்தமையும், பிறவற்றையும் உவமை வாயிலானும் ஆணையானும் அறிவிப்பதோடு சில பழைய நூல்களிலே சிலவற்றைச் சாதியாரும் சமயத்தாரும் மிகுத்தும் குறைத்தும் வேறுபடுத்தி வழங்குதல் இந்நூற்கும் நேராதபடி இதனதிகாரங்களுக்குத் தொகை கூறியும் **கற்று வல்ல கணவர்க்குக் கற்புடை நல்லாள் போலக் கவி**னமைந்து கிடக்கின்றது.

இத்துணைச் சிறப்புடைய விம்மாலையிலிருந்து 5, 7, 8, 9, 16, 21, 24, 34, 46, 50 என்னும் எண்ணுள்ள பத்து வண்ணமலர்கள் சொரியும் நறவை நுகர்வோம். இவற்றுள் 7, 8, 21, 34 என்னும் எண்ணுள்ளவை நான்கும் நாயனாரது பெருமையையும், 5, 9, 24, எண்ணுள்ளவை தமிழ்மறையின் தகுதியையும், எஞ்சிய மூன்றும் முப்பாலை மூயன்று பயில்வோரெய்தும பயனையும் உரைப்பனவாம். இச்செய்யுட்களுணர்த்துங் கருத்தினை யவ்வவற்றின் எண்ணுள்ள சொற்றொடர்களையிணைத்து நிறுத்து நோக்கினால்,

வள்ளுவரைப்பற்றி

" தானே முழுதுணர்ந்து (7) நான்கின் திறந் தெரிந்து செப்பிய (8) புலவர் திருவள்ளுவர் (34) புணற்கூடற்கச்சாம் (21) " என்னுந் தொடரும்

நூலைப்பற்றி

" வள்ளுவனார் குறள் (5) எப்பாலவரும்மியைப (9)

வேதப் பொருளாய் மிக விளங்கும் (24) என்னுந் தொடரும்.

நூற் பயனைப்பற்றி

"முப்பால் நூல் நயத்தின் பயன் (46) கேளாதன வெல்லாங் கேட்டு (50) மன்னு தமிழ்ப் புலவராய்க் கேட்க வீற்றிருக்கலாம் (16) என்னுந் தொடருந் தோன்றும்.

இனியிக்கருத்தினை விரித்துணர்த்தின்: தெய்வத் தன்மையான் எல்லாம் தானே உணர்ந்து தமிழ் நாட்டிற்கு ஆதாரமாயிருந்த புலவர் திருவள்ளுவராருளிய குறள் தமிழ் மொழியில் எல்லாப் பொருள்களுக்கும் சிறந்த பிரமாணமாய் எல்லார்க்கும் உடன்பாடாகும் பொதுமறையாக வுள்ளது. இதனைப் பயில்வோர் புலமை முற்றியிம்மை மறுமை வீட்டின்பங்களை எளிதிலெய்துவர்" என்னும் பொருண்மை புலனாகும்.

இதற்குமேல், வள்ளுவர், குறள், பயன் என்னும் மூன்றினையும் பற்றி முறையாகவாராய்வோமாக.

(1) பெருநாவலர் பெருமை

"தானே முழுதுணர்ந்து" என்னுஞ் செய்யுள் வள்ளுவரது கடவுட்டன்மையையும், கொடைச் சிறப்பினையுங் குறிக்கின்றது. யாங்ஙனமெனின்: தேயம் இடையிட்டவற்றையும், காலமிடையிட்டவற்றையும் காணும் ஞானக்கண்ணை யாம்பெற்றிலம். அன்றியும், நமது உள்ளமானது கருவிகளெல்லாவற்றோடுங்கூடி விழிப்பு நிலையினின்று விடயங்களை யறியுமிடத்து எல்லாவற்றையும் ஒருங்கே அறியுந்தரம் பெறாமல் இருக்கின்றது. இவ்வாறறியுங் காலத்து ஒன்றனை யறிந்தும், ஒன்றனை யறியப்புகுவதாயும், முன்னறிந்த தொன்றினை யறியா தொழிந்தும், இங்ஙனம் மொரோ வொன்றாக வறியப்பட்ட விடயத்தையும் இடையீடின்றி யறிய மாட்டாது விட்டு விட்டு அவத்தை யுற்றடங்கி மீள அறிந்து வருதலுங் கண்கூடாகக் காண்கின்றோம். செந்தமிழ் நிலஞ்செய்த தவப்பயனாய்த் தோன்றிய திருவள்ளுவனாருள்ளம் அத்தன்மையதன்று.

பல்வகை நிறங்கள் படிகத்தின் வண்ணத்தை மறைத்து நிற்பதுபோல ஐம்பொறிகள் கண்டெடுக்கும் விடயங்கள் நமதுள்ளத்தைத் தூர்ந்துநின்று அதன் உண்மையை மறைக்கும். இதனை அப்பின்கண் உப்பைப்போல உயிரோடென்றும் இயைபுடைய மெய்யுணர் வொன்றினாலேயே நீக்க முடியும். அவ்விடய மறைப்பு எஞ்ஞான்றும் பற்றுதலற்ற நிலையில் படிகத்தினிடத்து மாணிக்கத்தின் சோதி பாய்ந்தாற் போன்று உயிரினிடத்து ஓர் பேரறிவுப் பிழம்பு முற்றுங் கலந்து சற்றும் பிரியாது எல்லாவற்றையும் முறையாக வுணர்த்தி நிற்றலைக் காணலாம். இவ்வாறுணர்த்தி நிற்கும் பேரறிவோடு இடையறாது புணர்ந்து நின்றால் எல்லாவற்றையுமொருங்கே யுணரும் முற்றறிவு நிலை கைகூடும். இந்நிலை யெய்தியோரே நம் வள்ளுவனார். இதற்கு அகச்சான்றுண்டோ வெனின், காட்டுதும்: பொறிகள் உயிரை அடர்ந்துநின்று விடயங்களால் மறைத்தலால் அவை அடற்பால வென்பதனை "அடல் வேண்டும் ஐந்தன் புலத்தை" (343) என்பதனாலும், பொறிகளை யட்டவிடத்து, உயிருக்குயிராய் நிற்கும் பேரறிவுப் பெரும்பொருள் தோன்றுமென்பதூஉம், அப்பொருளை நெகிழ்ச்சியின்றி இறுகப்பற்றிக் கொள்ளவேண்டும் என்பதூஉம் "பற்றுக பற்றற்றான் பற்றினை" (350) என்பதனாலும், முன்னைப்பயிற்சி வசத்தான் பிறிதொருகால் விடய மறைப்பு உளதாயின் அதனை மெய்யுணர்வால் நீக்கிக்கொள்ளுக வென்பதனை "அப்பொருள் மெய்ப்பொருள் காண்பதறிவு" (355) என்பதனாலும், எல்லா வண்மைகளையும் உயிருக்குயிராய் விளங்கும் செம்பொருளின் துணைகொண்டே அறிதல் வேண்டுமென்பதனைச் "செம்பொருள் காண்பதறிவு" (358) என்பதனாலும், தன்னுயிரின் உண்மையையும் அவ்வுயிருக்குயிராய் விளங்கும் இறைவனையுங் கண்டு தன்பால் அவ்விறைவனது குணங்களெல்லாம் முற்றப் பற்றிக் கிடக்கப்பெற்றோரே கடவுட்டன்மை யுடையார் என்பதனை "தன்னுயிர் தானறப் பெற்றான்" (268) என்பதனாலும் வள்ளுவனாரறிவிக்குமாறுணர்தும். இது பற்றியன்றே யவரைத் "தானே முழுதுணர்ந்தா" ரென்றும், "மன்புலவ" ரென்றும், "மறுவில் புல" முடையாரென்றும் "வாலறிவின் வள்ளுவ" ரென்றும் "தே" வென்றும், "தேவர் திருவள்ளுவ" ரென்றும், "தேவிற் சிறந்த திருவள்ளுவ" ரென்றும் "தெய்வத் திருவள்ளுவ" ரென்றும் பல் கலைத்துறை முற்றிய தொல்லாணை நல்லாசிரியர்களெல்லாம் நனி வாழ்த்துவாராயினர். (தொடரும்)

Department of Telugu:

2 - JUN 1955
MADRAS

రసతరంగిణి

శ్రీ తిమ్మావజ్ఝల కోదండరామయ్య

ప్రతిమానాటకము – నామౌచిత్యము.

(The Title of the Play)

భాసమహాకవి రచితములుగాఁ జెప్పఁబడుచున్న పదుమూఁడు రూపకములలో రామాయణకథేతివృత్తమును బ్రతిపాదించునవి ప్రతిమయు, నభిషేకమును. భాసుని యప్రతిమకల్పనాసామగ్ర్యమునకును, బ్రాతిభనిర్మితిరచనావైశారద్యమునకును బ్రతిమ పెట్టినది పేరు! రససిద్ధినిర్వహణమున భాసునిరూపకములలో స్వప్నవాసవదత్తమునకుఁ దరువాత నీ ప్రతిమయే యప్రతిమానమై వెలయుచున్నదనుట యతిశయోక్తి కాఁజాలదు. ప్రథమాంకమున వల్కలకల్పనము, తృతీయాంకమున దశరథ ప్రతిమాకల్పనము, పంచమాంకమున దశరథ శ్రాద్ధకల్పనము ననుసరిక్రొత్తవిషయములతోఁ, గాళిదాసాదులును ననుకరింపఁదగిన భావస్ఫోరకరచనములతోఁ బ్రేక్షకుల మనములకు గిలిగింత పెట్టఁగల ప్రశస్తనాటక మిది! ఇట్టి ప్రశస్తి నందిన యీ ప్రతిమానాటకముయొక్క నామౌచిత్యమునుగూర్చి యించుక ముచ్చటింతము.

కథాశరీర నిర్మాణమునందుఁ బ్రధానభూమిక వహించుచున్న దశరథప్రతిమనుబట్టి యీ నాటకమునకుఁ బ్రతిమానాటక మని పేరు వచ్చినది. సంస్కృతనాటకములలో సాధారణముగాఁ బ్రస్తావనమునందు నాటకమునుగూర్చియుఁ, దద్రచయితనుగూర్చియుఁ బ్రస్తావ ముండుట సంప్రదాయము. కాని యిందుఁ బ్రస్తావనములో నట్టి ప్రస్తావ మేదియుఁ గానరాదు. ప్రతిమానాటక మని యీపేరొకానొక తాళపత్రగ్రంథములో నీ నాటకమునకుఁ గడపట నున్నగద్యమునుబట్టి యేతన్నాటకమును దొలుత వెలుఁగులోనికిఁ దెచ్చిన మహాపండితుఁడు మహామహోపాధ్యాయ శ్రీ టి. గణపతి శాస్త్రిగారు పెట్టినది.

తృతీయాంకమున భరతుఁడు ప్రతిమాగృహమున నుండఁగా దశరథ మరణ వృత్తాంత మతనికిఁ దెలియును. భరతుఁడు చాలనాళ్లనుండి తన మేనమామగారియింట నుండెను. తన జనకుఁ డస్వస్థశరీరుఁడుగా నుండె నని తెలిసి యతఁ డయోధ్యకు రథారూఢుఁడై యరుదెంచుచుండెను. అయోధ్యానగరము బహిఃప్రదేశము నాతఁడు చేరుసరికి రాజగురువులు వసిష్ఠులవారు 'కృత్తికానక్షత్రమింక నొక్క గడియ గలదు. కావున నీ గడియ గడచి రోహిణీనక్షత్రము వచ్చిన తరువాతనే నగరప్రవేశము చేయవచ్చును' అని వార్త నంపిరి. ఊరిబయటఁ గొంత విశ్రాంతి గొని నగరములోఁ బ్రవేశించుట పెద్దల యాచార మని యాతఁ డచట నాగడియసేపు విశ్రమింపఁ దలఁచును. అచ్చటి ప్రతిమాగృహము నొక్క దేవళ మని యెంచి యాతఁడు విశ్రాంతియు, దేవపూజయు రెండును గలిసి వచ్చునని యందుఁ బ్రవేశించును.

ప్రతిమాగృహమున స్థాపితము లయి యుండినయిక్ష్వాకుల ప్రతిమలను గాంచి యాతఁ డవి దైవతప్రతిమ లని నమస్కరింపఁ బోవఁగాఁ బ్రతిమాగృహరక్షకుఁడు దేవకులికుఁ డతని వారించును. విగతజీవుల ప్రతిమలను మాత్రమే ప్రతిమాగృహమున నిలుపుదు రని దేవకులికుని వలనఁ దెలిసికొని యచట నుండిన దశరథప్రతిమను గాంచి భరతుఁ డాందోళన మందును. దశరథ మరణ వృత్తాంతమును ఋజుమార్గమునఁ గాక మార్గాంతరమున నెఱిఁగిన భరతుఁడు వివరములఁ దెలుప మని దేవకులికునిఁ దొందరించును. శ్రీరామచంద్రుఁడు వనవాసమున కేఁగుటయుఁ, బుత్రవియోగవ్యథచే దశరథుఁ డసువులఁ బాయుటయు, నీదుస్థితికిఁ గారణ మగు తనతల్లి కైకేయి దుశ్చింతయు భరతుఁడు దేవకులికునివలనఁ దెలిసికొని కైకేయిని గర్హించుచుఁ దన సోదరుఁ డగు శ్రీరామచంద్రునకై దయనీయముగాఁ బరితపించును. తనతల్లి కైకేయి దుశ్చింతకుఁ బ్రతిక్రియగా భరతుఁడు తనతల్లి

ప్రయత్నమునఁ దనకుఁ బ్రాప్తించిన రాజ్యాభిషేకమును బరిత్యజించి శ్రీరామచంద్రునిఁ బ్రార్థించి యాతని నయోధ్యకుఁ దెచ్చుటకై సుమంత్రునితోఁ, బ్రకృతులతో వనముల కేఁగును.

శ్రీరామచంద్రుని రాజ్యాభిషేక మీ నాటకమున నపేక్షితప్రధానఫలము. తత్ఫలాగమప్రాప్తికిఁ గలదొడ్డ యడ్డంకులలో నొకటి యగు భరతరాజ్యాభిషేకము జరుగక పోవుట కీ దశరథప్రతిమాకల్పనమే ప్రధానకారణ మగుచున్నది. ఈ నాటకమున నిది యొకప్రధానఘట్టము! కథాగమనమును మఱొకబాటకుఁ దార్చుకీలకస్థాన మిది! కైకేయి స్వార్థపరతవలన శ్రీరామచంద్రుని రాజ్యాభిషేక మాగిపోయినది. అది చాలక యతనికిఁ బదునాలుగేండ్లు వనవాసమును విధింపఁబడినది. రాజ్యాభిషేకమునకు భరతుఁ డుత్తరాధికారి యయ్యెను. కనుక శ్రీరామపట్టాభిషేకము జరుగుట కెట్టి యవకాశమును లేదు. తనయాజ్ఞ నుపసంహరించుకొని శ్రీరామపట్టాభిషేకమునకై తిరిగి యాజ్ఞాపించుటకును దశరథుఁడు సజీవుఁడు కాఁడు. అతఁడు మృతుఁ డయ్యెను. ఇట్టి క్లిష్టపరిస్థితిలో భరతుఁడు తన జనకుఁ డగు దశరథుని మరణవృత్తాంతమును, నందులకుఁ గారణభూత మగు తనతల్లి కైకేయి దుశ్చింతను దెలిసికొనును. రాజ్యాభిషేకము నంగీకరింపకుండుటకై యాతఁడు కావించుకొనిన సముచితనిర్ణయమును, శ్రీరామచంద్రునిఁ బ్రార్థించి యాతనిఁ దిరిగి యయోధ్యకుఁ గొనితేరవలయు నని సంకల్పించిన యాతని సంకల్పమును 'శ్రీరామరాజ్యాభిషేక' మను నాటకఫలాగమప్రాప్తికిఁ గల రెండు ప్రధానాటంకములను దొలఁగించుచున్నవి. ప్రతిమాగృహమున జరిగిన యీవృత్త మిట్లు నాటకమునఁ బ్రాధాన్యము గలిగి వెలయుచున్నది. ఇందుచేతనే ప్రతిమానాటక మని యీ నాటకమున కిడినపేరెంతయు సమర్థనీయమును, సముచితమును నని తలఁపఁదగియున్నది. ఇందలి ప్రతిమాగృహవృత్తాంతము భాసుని స్వకపోలకల్పిత మయి, సరస మయి, మనోహర మయి వెలయుచుండుటయే గాక నాటకమునకు శీర్షభూతముగా నుండి సమర్థనీయ మగుచున్నది.

భాసనాటకములను సవిమర్శముగాఁ బరిశీలించిన కాలే మహాశయుఁ డీ ప్రతిమాగృహకల్పన మంత సరసముగా లేదని యభిప్రాయపడి యేతద్ఘట్టమును నిశితముగా విమర్శించియున్నాఁడు. భరతుఁడు ప్రతిమాగృహమును దేవాలయముగాఁ దలంచి యందుఁ బ్రవేశించినాఁ డనుటచే నతఁ డచటి ప్రతిమాగృహము నెన్నఁడును జూచి యుండలేదని తెలియుచున్నది. ఇది యంత సహజముగా, విశ్వాస్యముగా లేదని కాలేపండితుని యభిప్రాయము. కాని భరతుఁడు చాలనాళ్లనుండి తన మేనమామగారి యింట నుండెను. 'అయోధ్యలోని వార్తలేవియు నాతనికిఁ దెలియవయ్యెను.' 'మహారాజులుంగారు మిక్కిలి యస్వస్థశరీరులుగా నున్నారని' యతని రాజ్యాభిషిక్తునిఁ గావించుటకై సుమంత్రాదులు కబురు పంపఁగా నది విని యాతఁ డయోధ్యకు వచ్చుచుండెను. ఇందుచే భరతుఁడు చాలనాళ్లనుండి—సంవత్సరములే కూడ—నయోధ్యానగరమున లేఁడని తెలియవచ్చుచున్నది. భరతుఁ డయోధ్యలో లేనియాకాలమున దశరథుఁ డాప్రతిమాగృహమును నెలకొలిపియుండవచ్చును. దశరథ మరణానంతర మాతని ప్రతిమయు నందు నిలుపఁబడి యుండఁదగును. ఇట కాలే మహాశయుఁడు "దశరథ మరణానంతరము పదునైదుదినముల వ్యవధిలో నంత శీఘ్రముగా దశరథప్రతిమ ప్రతిమాగృహమున నెలకొలుపఁబడి యుండుట యెట్లు విశ్వాస్యమగు" నని ప్రశ్నించుచున్నాఁడు. కాని నాటకమునం దెచ్చటను దశరథమరణదివసమునకును, భరతుని యయోధ్యానగరాగమన దివసమునకును గలమధ్యకాలము పదునైదుదినములే యని నిశ్చయముగాఁ జెప్పఁదగిన ప్రామాణికాధారము లేవియుఁ గానరావు. ఆమధ్యకాల మంతకంటెను నెక్కువ కావచ్చును. కథాగమనమున నీ ఘట్టమునకుఁ బ్రత్యేకప్రాధాన్య మెన్నఁదగిన దేదియు లేదని యా పండితుని యభిప్రాయము. కాని యిది నాటకమున నొక కీలకఘట్టమగుట యింతకుమునుపు సకారణముగా నిరూపితము.

ప్రొఫెసరు ధ్రువ యను పండితుఁ డీ నాటకమునకు 'ప్రతిమాదశరథ' మనునది పేరయి యుండు నని తలఁచుచున్నాఁడు. కాని యందులకు నిర్ణాయక మగు తాళపత్ర గ్రంథాధార మేదియు మనకు లభించుటలేదు.

దేవధరుఁ డను మఱియొక విమర్శకవిద్వాంసుఁడు ప్రతిమానాటక మనుటను మఱొకవిధముగా వ్యాఖ్యానించినాఁడు. "ఈ నాటకమున భరతుఁడు దశరథునికని, శ్రీరామచంద్రునకును నచ్చము ప్రతిముగాఁ—ప్రతి విగ్రహముగాఁ—జిత్రింపఁబడియున్నాఁడు. దేవకులికుఁడు, సుమంత్రుఁడు, లక్ష్మణుఁడు, సీత మొదలగువా రందుచేతనే నాటకమునఁ బలుతావుల భరతుని దశరథశ్రీరామచంద్రులనుగాఁ బొరఁబడుట తటస్థించినది"—ఇది యా విద్వాంసుని యభిప్రాయము.

ఇందుఁ దొలుతఁ గావింపఁబడిన సమర్థనమే సరసమని, సమంజస మని తోఁపక పోదు. (సశేషము)

Department of Mathematics :

ON A METHOD OF SOLVING : : : : THE QUADRATIC EQUATION

By

K. Rajagopal Naidu, M.A., L.T., DIP. ECON.

The method consists in reducing the quadratic to a form in which the term in the first degree is absent. As the method has general application in the solution of higher degree equations as well, the student may interest himself by carefully following the procedure outlined.

Let $ax^2+bx+c=0$ (1)

be the given equation,

Put $x=y+h$

Then we have

$$a(y+h)^2+b(y+h)+c=0$$

i.e., $ay^2+y(2ah+b)+ah^2+bh+c=0$ (2)

Choose 'h' so that the coefficient $(2ah+b)$ of y is 0

i.e., $h=-\dfrac{b}{2a}$

Then (2) becomes

$$ay^2+\frac{b^2}{4a}-\frac{b^2}{2a}+c=0$$

i.e., $ay^2=\dfrac{b^2-4ac}{4a}$

$$\therefore\ y^2=\frac{b^2-4ac}{4a^2}$$

$$\therefore\ y=\pm\frac{\sqrt{b^2-4ac}}{2a}$$

$$\therefore\ x=y+h=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$$

Example: Reduce the cubic equation $ax^3+3bx^2+3cx+d=0$ to one in which the term in x^2 is missing.

Put $x=y+h$.

Then we have

$$a(y+h)^3+3b(y+h)^2+3c(y+h)+d=0$$

i.e., $a(y^3+3y^2h+3yh^2+h^3)+3b(y^2+2yh+h^2)+3cy+3ch+d=0$

i.e., $ay^3+3(ah+b)y^2+3(ah^2+2bh+c)y+(ah^3+3bh^2+3ch+d)=0$

Substituting $h=-b/a$, we have

$a^3y^3+3a(ac-b^2)y+a^2d-3abc+2b^3=0$, as the required equation.

If the roots of the original equation are α, β, γ, the roots of the transformed equation are

$\alpha+\dfrac{b}{a}$, $\beta+\dfrac{b}{a}$, $\gamma+\dfrac{b}{a}$ or since $\alpha+\beta+\gamma=\dfrac{-3b}{a}$, the roots are $\frac{1}{3}(2\alpha-\beta-\gamma)$; $\frac{1}{3}(2\beta+\gamma-\alpha)$; $\frac{1}{3}(2\gamma-\alpha-\beta)$.

SOLUTIONS TO U-QUESTIONS

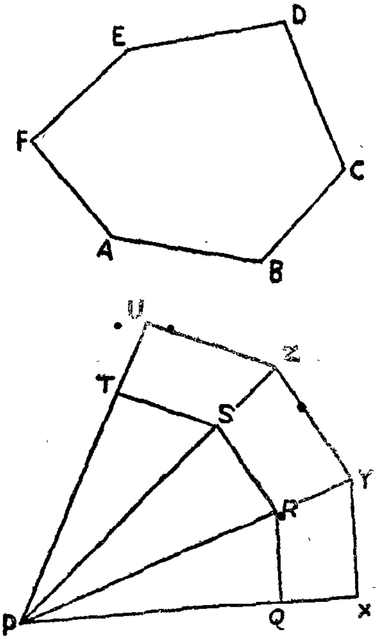
By

K. Rajagopal Naidu, M.A., L.T., DIP. ECON.

In this issue of the bulletin, let us consider the solutions to a few questions that occurred in the recent Intermediate Examination held in March '52.

1. *Show how to draw a polygon similar to a given polygon and equal in area to another.*

Suppose it is required to draw a polygon equal in area to ABCDEF and similar to PQRST, say.



Construction: First reduce each of the polygons to an equivalent square. Let a, b be the sides of these squares. Find a point X in PQ, such that $\frac{PX}{PQ} = \frac{a}{b}$. Through X draw XY ∥ to QR meeting PR at Y. Through Y, draw YZ ∥ to RS cutting PS at Z and so on. Thus the polygon PXYZU is completed. This is the required polygon.

Proof: By construction PXYZU is similar to PQRST, since both the polygons are composed of the same number of similar triangles.

Again, $\frac{\text{Area of polygon PXYZU}}{\text{,, ,, PQRST}} = \frac{PX^2}{PQ^2}$

$$= \left(\frac{PX}{PQ}\right)^2 = \left(\frac{a}{b}\right)^2$$

$$= \frac{a^2}{b^2} = \frac{\text{Area of polygon ABCDEF}}{\text{Area of polygon PQRST}}$$

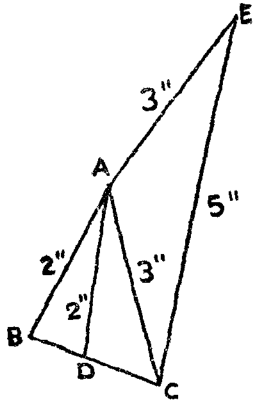
∴ Area of polygon PXYZU = Area of polygon ABCDEF.

2. *In a triangle ABC, $b = 3''$, $c = 2''$ and AD, the bisector of the angle A is 2″. Construct the triangle, and measure the length of the side 'a'. Verify by calculation.*

Analysis: Suppose CE to be drawn ∥ to DA meeting BA in E.
Then AE = AC = 3″.

Also $\frac{BA}{BE} = \frac{AD}{CE}$, so that CE is the 4th proportional to BA, BE and AD.

∴ CE can be found by construction (and = 5″). This leads to the following construction.



First draw △ ACE, with CE = 5″, AC = 3″ and AE = 3″. Produce EA to B making AB = 2″. Join BC. Then ABC is the required triangle.

Verification: We know that

$$AD^2 + BD \cdot DC = AB \cdot AC \text{ (Theorem)}$$

$\therefore$ BD. DC = AB. AC − AD²

= 6 sq. inches − 4 square inches.

= 2 sq. inches, (i)

Also $\frac{BD}{DC} = \frac{2}{3}$ (ii)

Multiplying (i) and (ii) we have $BD^2 = \frac{4}{3}$.

$$\therefore \quad BD = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}''}{3}$$

$$DC = \frac{3}{2} BD = \frac{3}{2} \times \frac{2\sqrt{3}''}{3} = \sqrt{3}''$$

$$\therefore \quad a = BC = BD + DC = \frac{2\sqrt{3}}{3} + \sqrt{3}$$

$$= \frac{5\sqrt{3}''}{3}$$

3. *Show that the expression* $\frac{px^2 + 3x - 4}{p + 3x - 4x^2}$ *will be capable of assuming all values when* x *is real, provided that* p *has any value between 1 and 7.*

Let $y = \frac{px^2 + 3x - 4}{p + 3x - 4x^2}$ (1)

Cross multiplying and arranging it as a quadratic in x, we have

$x^2(4y + p) + 3(1 - y)x - (4 + py) = 0$ (2)

As x is real, the discriminant of this quadratic cannot be −ve

$\therefore \quad 9(1 - y)^2 + 4(4y + p)(4 + py) \nless 0.$

Rearranging,

$(16p+9)y^2 + 2(2p^2+33)y + (16p+9) \nless 0$ (3)

For this (i) $16p + 9 > 0$

and (ii) the discriminant $4(2p^2 + 23)^2 - 4(16p+9)^2 < 0$

i.e. $(2p^2 + 23)^2 - (16p+9)^2 < 0$

i.e. $4p^4 - 164p^2 - 288p + 448 < 0$

i.e. $p^4 - 41p^2 - 72p + 112 < 0$

i.e. $(p-1)(p-7)(p+4)^2 < 0$

$\therefore$ p must lie between 1 and 7, and we find that for this value of p, $16p + 9 > 0$.

$\therefore$ When p lies between 1 and 7, the discriminant of (3) is − ve, and the coefft of y^2 is + ve, so that condition in (3) will be satis fied for all values of y.

4. *Form the equation whose roots are the squares o the sum and of the difference of the roots of* $2x^2 + 2(m+n)x + (m^2+n^2) = 0$.

If α and β are the roots of the given equation, we have, $\alpha + \beta = \frac{-2(m+n)}{2} = -(m+n)$

$$\alpha\beta = \frac{m^2 + n^2}{2}$$

we have to form the equation whose roots are $(\alpha + \beta)^2$ and $(\alpha - \beta)^2$.

Now $(\alpha + \beta)^2 = [-(m+n)]^2 = (m+n)^2$

$(\alpha - \beta)^2 = (\alpha + \beta)^2 - 4\alpha\beta = (m+n)^2 - 4 \cdot \frac{(m^2 + n^2)}{2}$

$= -(m-n)^2$

The required equation is

x^2 − [sum of the required roots] x + [product of the required roots] = 0

i.e. $x^2 - \left[(m+n)^2 - (m-n)^2\right]x + \left\{(m+n)^2 \times -(m-n)^2\right\} = 0$

i.e. $x^2 - 4mnx - (m^2 - n^2)^2 = 0$

5. *If the* $(m+1)^{th}$, $(n+1)^{th}$ *and* $(r+1)^{th}$ *terms of an A P are in GP, and* m, n, r *are in H.P., show that the ratio of the common difference to the first term in A·P is* $-\frac{2}{n}$.

Let 'a' be the first term, and 'd' the common difference of the A·P.

Then the $(m+1)^{th}$ term $= a + md$

,, $(n+1)^{th}$ term $= a + nd$

,, $(r+1)^{th}$ term $= a + rd$

By *hyp.*, $a + md$, $a + nd$, $a + rd$ are in G·P.

$\therefore \quad (a + nd)^2 = (a + md)(a + rd)$

i.e. $a^2 + 2a\,nd + n^2d^2 = a^2 + mda + rda + mrd^2$

i.e. $ad\,(m + r - 2n) = (n^2 - mr)\,d^2$

dividing by 'd', which is not zero,

we have $a\,(m + r - 2n) = (n^2 - mr)d$.

$$\therefore \quad \frac{d}{a} = \frac{m + r - 2n}{n^2 - mr} = \frac{n(m+r) - 2n^2}{n(n^2 - mr)}$$

But m, n, r are in H·P

$$\therefore \quad \frac{2}{n} = \frac{1}{m} + \frac{1}{r} = \frac{m + r}{mr}$$

$\therefore \quad (m + r)n = 2mr$

Substituting we have,

$$\frac{d}{a} = -\frac{2}{n}$$

CALORIMETRY

By

A. V. Subrahmanyam, M.A.

Units: In order to measure heat as a quantity, a unit of heat is necessary. The unit of heat generally chosen is the quantity of heat required to raise the temperature of unit mass of water through unit degree on any scale of temperature.

In the C.G.S. system, the quantity of heat required to raise the temperature of one gram of water through 1°C is taken as the unit of heat and it is known as a *calorie*.

[Strictly, a calorie is the quantity of heat required to raise the temperature of one gram of water from 14·°5C to 15 °5C. But for all practical purposes, the calorie is taken as the quantity of heat required to raise the temperature of one gram of water through 1° anywhere along the centigrade thermometric scale]

In the F.P.S. system, the quantity of heat required to raise the temperature of 1 lb. of water through 1° Fahrenheit is taken as the unit of heat and it is known as *British Thermal Unit.* (B. Th. U.)

Another mixed unit of heat largely used in Engineering is the *Centigrade Thermal Unit.* (C. Th. U.)

It is the quantity of heat required to raise the temperature of 1 lb. of water through 1°C.

The gas companies use yet another unit known as a therm. A therm is the quantity of heat required to raise the temperature of 1000 lb. of water through 100°F. Thus a therm = 100000. (B. Th U's.)

At times, the quantity of heat required to raise the temperature of 1 kilogram of water through 1°C, is taken as the practical unit in the C.G.S. system. This practical unit is known as a large colorie. Thus a large colorie = 1000 colories.

Specific Heat; The ratio of the quantity of heat required to raise the temperature of a given mass of a substance through a given range of temperature to the quantity of heat required to raise the temperature of an equal mass of water through the same range of temperature is known as the *specific heat* of the substance.

It will be noted thus that the specific heat of a substance is a ratio represented by the same number both in the C.G.S. and F.P.S. systems.

If the specific heat of a substance be represented by S,

$$S = \frac{\text{(The quantity of heat required to raise 'm' units of mass of the substance through } t^\circ\text{)}}{\text{(The quantity of heat required to raise 'm' units of mass of water through } t^\circ\text{)}}$$

But the heat required to raise the temperature of 'm' units of mass of water through $t^\circ = mt$ units of heat.

∴ The quantity of heat required to raise the temperature of 'm' units of mass of the substance through $t^\circ = mst$ units of heat. In the C G S. system,

$$S = \frac{\text{(The quantity of heat required to raise the temperature of m gms. of the substance through } t^\circ C\text{)}}{\text{(The quantity of heat required to raise the temperature of 'm' gms. of water through } t^\circ C\text{)}}$$

But the quantity of heat required to raise the temperature of m gms. of water through $t^\circ C = mt$ calories. Therefore the quantity of heat required to raise the temperature of m gms. of the substance through $t^\circ C = mst$ calories, when 'S' is the sp. ht. of the substance. It can be shown similarly that the heat requised to raise the temperature of 'm' lb. of the substance through $t^\circ F = mst$. (B. Th. U's.)

The C.G.S. system, however, is as usually employed in experimental work.

If H be the quantity of heat required to raise the temperature of m gm of a substance of sp. ht. 'S' through t°C, $H=mSt$ calories. If $m=1$ and $t=1$, $H=S$. Therefore, the specific heat of a substance is numerically equal to the quantity of heat (in calories) required to raise the temperature of 1gm. of the substance through 1°C. A similar relation will, of course, hold good in the F.P.S. system also.

Thermal capacity: The quantity of heat required to raise the temperature of body through 1° is known as the thermal capacity of the body. If m be the mass of a body and S its specific heat, the thermal capacity of the body = ms units of heat. If m be measured in gms. the thermal capacity is ms calories (since the rise of temperature is 1 °C). Similarly, if m be measured in lb., the thermal capacity will be mS B. Th. units.

If the thermal capacity of a body be represented by C,

$$C=mS. \text{ If } m=1,\ C=S.$$

Hence the specific heat of a substance is also memerically equal to its thermal capacity per unit mass.

Water equivalent: The mass of water that will be raised through 1° by the quantity fo heat required to raise the temperature of the body through 1° is known as the water-equivalent or water-value of the body. In the C.G.S. system, the mass of water in grams that will be raised through 1°C by the quantity of heat required to raise the temperature of the body through 1°C is the water-equivalent of the body. If m gm. be the mass of the body whose sp. ht. is S, the quantity of heat required to raise the temperature of the body through 1°C is mS calories. This quantity of heat will raise the temperature of mS grams of water through 1°C. Therefore, the water-equivalent of the body is mS grams. Similarly, in the F.P.S. system the water-equivalent will be mS lb. Thus, the thermal capacity and water equivalent of a body are *numerically* equal.

[For experiments in calorimetry, refer to practical physics, Part I, by the author]

Examples :—

1. A copper ball weighing 6 lb. taken out from a furance and plunged into 20 lb. of water at 10°C heated the water to 25°C. Find the temperature of the furnace. (sp. ht. of copper =0·095)

Let the temperature of the furnace be t°C.

Then heat lost by the copper ball $=6\times0{\cdot}095\times(t-25)$ (C. Th. U's.)

Heat gained by water $=20\times1\times15$ C.Th.U's.

Heat lost=heat gained.

$\therefore\ 6\times0{\cdot}095\times(t-25)=20\times15$

$\therefore\ t=551{\cdot}^\circ3C.$

2. A copper calorimeter of mass 100 gm and sp ht. 0·09 contains 80 gm. of a heavy oil at 28°C. A piece of copper of mass 100 gm. and at a temperature of 100°C. is dropped into it and the contents well stirred. If the common resulting temperature is 39°C., find the specific heat of the oil.

Water-equivalent of the calorimeter

$=100\times0{\cdot}09=9$ gm.

Let S be the sp. ht. of the oil.

Then the water-equivalent of the oil....

$=80$ S gm.

$\therefore$ Total water-equivalent of calorimeter and oil$=(9+80S)$ gm.

Heat gained by calorimeter and contents $=(9+80S)(39-28)$ calories. Heat lost by the copper piece $=100\times0{\cdot}09\times(100-39)$ calories.

Heat gained = Heat lost.

$\therefore\ (9\div80\,S)11=9\times61$

$\therefore\ S=\frac{45}{88}=\cdot51$

3. Equal volumes of alcohol at 5°C and turpentine at −60°C. are shaken together; find the temperature of the mixture. The specific gravities of alcohol and turpentiee are 0·80 and 0·87, and their specifie heats are 0·60 and 0·42.

Let v.c.c.'s of alcohol and turpentine be taken ; and let the temperature of the mixture be T°C.

Heat lost by turpentine $= v \times \cdot 87 \times \cdot 42 \times (60 - T)$ calories.

Heat gained by alcohol $= v \times \cdot 8 \times \cdot 6 \times (T - 5)$ calories.

Heat lost = Heat gained.

i.e. $v \times \cdot 87 \times \cdot 42 \times (60 - T) = v \times \cdot 8 \times \cdot 6 \times (T - 5)$

$$0 \cdot 3654\,(60 - T) = 0 \cdot 48 (T - 5)$$

$$21 \cdot 923 - 0 \cdot 3653 T = 0 \cdot 48 T - 2 \cdot 4$$

$$0 \cdot 8454 T = 24 \cdot 324$$

$$\therefore\ T = 28 \cdot {}^{\circ}8C.$$

4. The calorific value of coke is 13,000 B. Th. Units per pound. Find the minimum amount of coke which would have to be burnt in order to heat 30 gallons of water from 60°F to 130°F for use in a bath. (1 gallon of water weighs 10 lb.)

[The calorific value of any sample of fuel is the amount of heat given out when 1 lb. is burnt.]

30 gallons of water will weigh 300 lb.

The heat required to heat 300 lb of water from 60°F to 130°F $= 300 \times 70 = 21000$ B. Th. units. The heat generated by burning 1 lb of coke = 13,000 B. Th. units.

The amount of coke required to generate 21,000 B. Th. units $= \frac{21000}{13000}$ lb. $=$ 1·61 lb.

5. Equal volumes of mercury and glass have the same capacity for heat. Calculate the specific heat of a piece of glass of specific gravity 2·5, if the specific heat of mercury is 9·0333 and its specific gravity 13·6.

Let the volume of the glass piece be v.c.c. Then the capacity for heat of the glass piece $= v \times 2 \cdot 5 \times S$ calories where S is the sp. ht. of glass.

The capacity for heat of an equal volume of mercury $= v \times 13 \cdot 6 \times 0 \cdot 0333$ calories.

By the problem

$$v \times 2 \cdot 6 \times S = v \times 13 \cdot 6 \times 0 \cdot 0333$$

$$\therefore\ S = \frac{13 \cdot 6 \times 0 \cdot 0333}{2 \cdot 5} = 0 \cdot 18$$

6. (i) Find the relation between a B. Th. U. and a calories.

$$1 \text{ lb.} = 453 \cdot 6 \text{ gm}, \quad 1^{\circ}F = \frac{5}{9}{}^{\circ}C.$$

$$\therefore\ 1 \text{ B. Th. U} = 453 \cdot 6 \times \frac{5}{9} \times 252 \text{ calories.}$$

(ii) Find the relation between a C. Th. U. and a calorie.

Since 1 lb. = 453·6 gm.

1 C. Th. U = 453·6 calories.

VOLUMETRIC ANALYSIS

By

G. Venkateswarlu, B.Sc., (Hons.)

When the examination of any substance is *undertaken for the purpose of determining* the respective amounts of any of its constituents the investigation is known as quantitative analysis.

Example–To determine the amount of sodium chloride in the given solution: To determine the quantity of sodium chloride in a mixture of sodium chloride and ammonium chloride.

Quantitative analysis uses two important methods—Gravimetric and Volumetric.

In the ***gravimetric method*** of analysis, the constituent which is to be determined is separated from all the other constituents of the substance in the form of a sparingly soluble compound of known composition and the weight of the insoluble compound thus separated is determined accurately.

Example–In the sodium chloride solution the chloride may be separated in the form of silver chloride (which is sparingly soluble) by treating the sodium chloride solution with a slight excess of silver nitrate solution. The insoluble silver chloride may be filtered, washed free from impurities dried and its weight determined.

In the ***volumetric analysis*** the separation of the constituent to be determined is frequently unnecessary and one or more of the constituents of the substance can be rapidly and accurately determined in presence of all others thus simplifying the analytical process and saving much time.

In this method usually two solutions are employed, one containing the substance to be estimated and the other, of known concentration of a substance which has a definite reaction with the substance under examination. The volume of one of the solutions required to react with a known volume of the second solution is *determined by titration and the point when* the two solutions exactly react without any one being in excess is usually measured by means of an indicator.

Volumetric methods of analysis are more handy hence they are preferred to gravimetric methods of analysis which are cumbersome, elaborate and consuming more time.

Volumetric calculations—

The calculations are based upon the formula

$$N_1 \times V_1 = N_2 \times V_2$$

i.e. Normality × volume of the Burette solution is equal to the normality × volume of the pipette solution during any set of titrations.

The above equation can be derived from the law of equivalents which states that the chemical reactions take place between the equivalent weights of the reacting substances.

Let us study the reaction

$$\underset{40}{NaOH} + \underset{36 \cdot 46}{HCl} \rightarrow NaCl + H_2O$$

In the above reaction 40 parts of sodium hydroxide react with 36·46 parts of the hydrochloric acid.

In a particular volumetric titration let v_1 cc of N_1 normal sodium hydroxide react with V_2cc of N_2 normal acid.

1000 of 1N alkali contain 40g of NaOH

1000cc of N_1 normal alkali contains $40 \times N_1$g of NaOH.

V_1 cc of N_1 normal alkali contain

$$\frac{40 \times N_1 \times V_1}{1000} \text{ g of NaOH}$$

Similarly

1000 cc of 1N acid HCl contain 36·46 g of HCl

V_2cc of N_2 acid HCl contain

$$\frac{36 \cdot 46 \times N_2 \times V_2}{1000} \text{ g of HCl}$$

According to the equation—

$$40\text{g of NaOH} \equiv 36 \cdot 46\text{g of HCl}$$

V_1cc of N_1 normal NaOH

$$\equiv \left[\frac{40 \times N_1 \times V_1}{1000} \times \frac{36 \cdot 46}{40}\right] \text{g of HCl}$$

$$\therefore = \frac{36 \cdot 46}{1000} \times N_1 V_1 \text{ g of HCl}$$

So V_1cc of N_1 normal sodium hydroxide react with $\frac{36}{1000} \times N_1 V_1$ g of HCl which is present in V_2cc of acid of normality N_2.

$$N_1 \times V_1 = N_2 V_2$$

Conclusion.

If the normality of the burette solution is equal to the normality of the pipette solution then during the titration the volumes of both solutions are equal.

In case of any two solutions of different concentration the normalities are inversely proportional to the reacting volumes.

Preparation of approximately decinormal solutions for volumetric analysis.

(1) To prepare approximately—

Decinormal sulphuric acid solution:

Pure and concentrated sulphuric acid is 95% – 98% pure and of specific gravity 1·82 – 1·84; equivalent weight of sulphuric acid is 49·04. 49·04 g of acid in 1 liter makes the solution normal or 4·904 gms. of the acid in 1 liter makes the solution decinormal.

$$4 \cdot 904 \text{ gms} = \frac{4 \cdot 904}{1 \cdot 82} \text{ cc} = 2 \cdot 7 \text{ cc of acid}$$

in 1 liter makes the solution decinormal. Instead of weighing the acid which is tedious and which requires enormous care, measure 2·8 to 3cc of concentrated sulphuric acid into about 1000cc of distilled water and cool the solution before use. Shake the solution well to make it homogeneous.

(2) To prepare approximately—

Decinormal hydrochloric acid:

Concentrated hydrochloric acid is about 35% – 40% strong of specific gravity 1·18. Eq. wt. of hydrochloric acid is 36·47.

Transfer 100cc of concentrated hydrochloric acid into 250cc of water, stir the solution well and dilute the solution thus obtained to one liter. Once again shake the solution well before use.

(3) ***To prepare approximately decinormal solution of sodium hydroxide.***

4 gms of pure sodium hydroxide in 1 liter of the solution makes it decinormal.

Weigh 5 g of commercial sodium hydroxide into a 250cc beaker, dissolve it in 200cc of distilled water and dilute it to one liter with distilled water.

(4) ***To prepare approximately decinormal potassium hydroxide solution.***

Weigh 6 g of commercial potassium hydroxide into a 250cc beaker, dissolve it in about 200 cc of distilled water and dilute the solution to one liter with distilled water.

(5) ***Preparation of approximately decinormal solution of potassium permanganate*** (Eq. wt. = 31·61)

Weigh about 3·2 to 3·4 g of powdered potassium permanganate crystals into a 250cc beaker. The weighing may be done roughly but within the limits.

Add half beakerful of distilled water, stir well for ten minutes with a glass rod and allow the solution to settle. Transfer the clear supernatant solution into a container and again add water to the beaker. Thus dissolve the potassium permanganate crystals completely in the minimum quantity of water and transfer each time only the clear supernatant solution after settling. Never transfer particles of solid from the beaker into the main bulk of the solution. Dilute the solution to one liter and leave it over night after vigorous shaking for a long time. Decant the supernatant solution for use.

(6) ***Preparation of an approximately decinormal solution of Iodine***—(Eq. wt. of Iodine = 127).

Weight about 13—14g of resublimed and well powdered Iodine and 15—20 g of potassium Iodide into a 250cc beaker. Add half beakerful of water. Stir well till all the Iodine dissolves. Transfer the clear solution into a container and dilute it to one liter. (Do not transfer undissolved Iodine). Shake well to make the solution homogeneous.

(7) ***Preparation of approximately decinormal solution of Sodium Thiosulphate:*** $Na_2S_2O_3 5H_2O$ (Eq. wt. = 248)

Dissolve 25g of crystalline sodium thiosulphate in distilled water and dilute it to one liter. Keep the solution overnight and decant the clear solution.

Preparation of standard solutions is given in

the (Nos. 7 & 8 of Vol. 1) Jan. & Feb. '52 issue of the College Bulletin.

Experimental.

Apparatus required in volumetric work:— Burette; burette stand, pipette, pipette stand standard volumetric flask of the required capacity (50cc, 100cc, 250cc, etc), beaker, funnels, measuring cylinder, weighing bottle, balance and weight box, conical flask and others.

Ex 1:—Draw neat figures of the various pieces of apparatus and describe them with their uses.

Experimental procedure for titration:—

1. Clean all the apparatus with water before beginning any experiment and then rinse them with distilled water.

2. See that the burette does not leak—(i.e) when the burette is filled with water and the stop cock closed, drops of water should not come out either through the nozzle or from the side of the stop-cock, and when the nozzle is open the liquid inside must flow freely. The nozzle should not be blocked with grease or dust particles.

3. See that the stop cock is greased and that it is not stuck up (that it rotates smoothly in its seat)

4. The nozzle of the pipette should not be broken and its top should be even and polished.

(1) *Rinsing the pipette with the pipette solution*—

Suck the solution into the pipette till it is one-third full. Close the end and slowly rotate the pipette in a horizontal position so that the inside surface of the pipette is rinsed by the solution. Thus all the water inside the pipette is replaced by the solution. Discard the washings. When the above procedure of washing is done twice, the probability of dilution and subsequent error are eliminated.

(2) *Rinsing the burette with the burette solution*—

Clamp the washed burette to the stand and close the stop cock. Place a funnel on the burette and transfer 10 cc of the burette solution. Remove the funnel and rotate the burette in a horizontal position with the open end closed with the thumb till the inner surface is rinsed with the solution. Thus the washing is done again to replace the water which is likely to dilute the solution. Do not fail to wash the nozzle also with the solution. Discard the washings.

(3) Pipette out fixed volume of the solution (10, 20 or 25 cc according to the volume of the pipette used) into a clean conical flask. (Do not blow the last drop present in the nozzle of the pipette). Wash the sides of the conical flask with a jet of water.

(4) Add the suitable indicator at the right time (starch is added after the iodine solution is pale yellow. Some indicators like phenolphthalein methyl orange are added even before the titration. No indicator is required in permanganametry).

(5) Fill the rinsed burette with the burette solution till it is half full (with the help of a funnel) keep a beaker below the nozzle, and open the stop cock till the nozzle is filled completely without air bubbles with the solution. When the nozzle is full close the stop cock and fill the burette with the solution till the level is above the zero mark. With the beaker still under the nozzle open the stop cock to allow the solution drop by drop till the level of the solution in the burette comes to zero. The burette is now ready for use. The conical flask with the pipette solution is kept under the burette. The burette solution is allowed slowly into the flask with constant rotation till the end point is reached. The volume of the burette solution used is read on the burette without meniscus.

Clean the conical flask and repeat the titration till agreeing results are obtained. The details of each titration are tabulated as follows:

Name of the Burette Soln. *Vs.* × Name of the Pipette Soln.

No.	Volume of the Pipette soln. (V_1)	Volume of the Burette soln.		Volume of the Burette soln. used	Mean agreeing value
		Initial reading	Final reading		
1		*a*	*b*	*b—a*	
2					
3					
4					

Ex. 1 :—Fill the following Table with the required data.

No.	Burette Soln.	Pipette Soln.	Indicator	End point	Reaction between the Burette soln. and the Pipette soln. (equation)
1	Mineral acid HCl or H_2SO_4	Sodium hydroxide			
2	Do.	Sodium carbonate			
3	Weak organic acid (oxalic succinic or acetic acid)	Sodium hydroxide			
4	Do.	Sodium carbonate			
5	Potassium permanganate	Oxalic acid			
6	Do.	Ferrous sulphate			
7	Sodium thiosulphate	Iodine			

REVISION NOTES

By

G. Venkateswarlu, B. Sc (Hons.)

Acids, Bases and Salts.

Ex. I:—Give the name of the corresponding acid for each of the following salts:—

1. Magnesium nitrate is the salt of nitric acid.
2. Sodium Sulphate
3. Potassium chlorate
4. Calcium Bromide
5. Zinc Iodide
6. Potassium Bisulphite
7. Sodium Nitrite
8. Sodium Chlorite
9. Potassium Perchlorate
10. Potassium Bromate
11. Sodium Carbonate
12. Barium Phosphate
13. Copper Arsenite
14. Sodium Arsenate
15. Potassium Sulphide
16. Sodium Fluoride

Ex. 2:— *What are radicals?*

Write down the corresponding acid the formula, formula weight, valency and equivalent weight of each radical in the form of the following Table:—

No.	Radical	Corresponding acid	Formula	Formula weight	Valency	Eq. wt.
1	Sulphate	Sulphuric acid	SO_4	96	2	48
2	Carbonate					
3	Bicarbonate					
4	Phosphate					
5	Arsenate					
6	Bisulphate					
7	Bisulphite					
8	Biphosphate					
9	Hydrogen sulphide					
10	Sulphide					
11	Chloride					
12	Chlorite					
13	Chlorate					
14	Perchlorate					
15	Bromate					
16	Iodate					
17	Fluoride					
18	Acid fluoride					
19	Acetate					
20	Formate					

Ex. 3:—Fill the following Table with the required data.

No.	Salt	Corresponding		Equation representing the formation of the salt from the acid and the base
		Acid	Base	
1	Sodium Nitrate	HNO_3	NaOH or Na_2O	$NaOH + HNO_3 = NaNO_3 + H_2O$ $Na_2O + 2HNO_3 = 2NaNO_3 + H_2O$
2	Potassium Sulphate			
3	Magnesium Chloride			
4	Aluminium Nitrate			
5	Ferric Sulphate			
6	Sodium Bicarbonate			
7	Magnesium Bisulphate			
8	Aluminium Sulphate			
9	Barium Bisulphate			
10	Ammonium Biflouride			
11	Sodium Monohydrogen phosphate			
12	Sodium dihydrogen phosphate			
13	Trisodium Phosphate			
14	Tricalcium Phosphate			
15	Magnesium Bromide			
16	Aluminium Chloride			

THE SPLENDOUR OF THE EMPIRE OF VIJAYANAGAR

By

Neela Mudaliar

After the time of Alauddin Khikji the Muslims were making repeated attacks on the Hindus of the Deccan Mohammad Tughlak was determined to make the Deccan an integral part of his empire. The ruin and devastation of their country as well as the annihilation of their religion and destruction of their cities seemed imminent to the Hindus who now gathered under the standard of Vijayanagar.

Tradition ascribes the foundation of the new kingdom to the two brothers, Harihara and Bukka, at about 1336. They founded a city on the southern bank of Tungabhadra and it was completed in 1333. The city after the foundation speedily grew in importance and Ferishta admits that as early as 1378 the Rajas of Vijayanagar were greatly superior to Bahmani Kings.

Foreign travellers who visited India during the fifteenth and sixteenth centuries have left glowing accounts of the empire of the Vijayanagar. The city was encompassed by massive fortifications and was of enormous size—sixty miles in circumference with ninty thousand men fit to wear arms. Agriculture flourished in different parts of the Kingdom and the State pursued a wise irrigation policy. The principal industries related to textiles, mining and metal urgy and the most important of minor industries was perfumery. Craft. guilds and merchant guilds played an important part in the economic life of the kingdom. The most important feature in the economic condition of the realm was commerce, inland, Coasting and overseas. The most important port on the Malabar coast was Calicut and according to Abdur Razaak the empire possessed 300 ports and had commercial relation with the islands of Indian ocean, the Malaya Archipalego Burma, China etc. Abdur Razaak who visited Vijayanagar in 1443 A.D, also observes that "The City of Bijanagar is such that eye has not seen nor ear heard of any place resembling it upon the whole earth". We then come to the detailed description recorded by Paes about 1522 A D when the empire was at the height of its glory under Krishna Deva Raya. In his opinion "This is the best provided city in the world The state of the city is not like that of other cities which often fail of supplies and provision, for in this one, everything abounds". Along with the steady commercial activities, the realm followed a simple system of coinage which was of two types—Both Gold and Silver but rarely of Silver. Prices of articles were low.

Social life—Woman occupied a very high place in society and were admitted to all kinds of offices. Polygamy was a usual practice and child marriage was common. Sati was sanctioned and the Brahmins were held in high esteem and influenced not only religious and social life but even political affairs. The upper classes had a very high standard of living but the common man groaned under the weight of heavy taxation.

Literature and Art :—Vijayanagar Empire had to its credit brilliant culture and artistic achievements. The emperors were patrons of all languages—Sanskrit, Telugu, Kannada and

Tamil. Sayana the famous commentator of the Vedas and his brother Madhava flourished duriug the early days of Vijayanagar rule. Krishna Dev Raya's rule marked the dawn of a new era in the literary history of South India. Himself a scholar, a musician and a poet he loved to gather around him poets, philosophers and religious teachers whom he honoured with munificent gifts of land and money. In his court flourished "Ashtadig gajas" the gems of Telugu literature. His poet laurate Peddana enjoyed a wide reputation and held a high position among the Telugu writers.

Even the rulers of Aravidu Dynasty patronised poets and religious teachers and Telugu literature flourished under them. Works on music, dancing, Drama, Logic, Philosophy etc,, received encouragement from the emperors and their Ministers, In short, under the Vijayanagar empire there was a synthesis of the South Indian Culture.

Along with the growth of letters there was also a remarkable development of art and architecture. The ruins of the old capital proclaimed to the world that there evolved in the days of its glory a distinct style of architecture, sculpture and painting by native artists. The famous Hazara Temple built during the reign of Krishna Deva Raya was one of the perfect specimens of Hindu Temple architecture in existence. The art of painting attained a high degree of excellence and the art of music rapidly developed, Krishna Deva Raya and Ram Raya were proficient in music. Theatres provided amusements for the people. Though devoted Hindus, the Vijayanagar rulers were not fanatics but tolerant not only to different sects of Hinduism but even to alien creeds like Christian, Jewish and Moorish. Barbosa bears witness to this fact.

Administration.—The Vijayanagar Empire gradually developed a centralised administration. The King was the fountain head of all power. And was the supreme authority in civil, military as well as judicial affairs. He often intervened to settle social disputes. But he was not an irresponsible despot, neglecting the interest of his kingdom and ignoring the wishes of his people The Vijayanagar kings knew how to secure the goodwill of the people and, as Krishna Deva Raya wrote, to rule according to Dharma. The king was assisted in the task of administration, by a Council of Ministers appointed by him. Besides the Ministers there were other officers, like the Chief Treasurer custodian of the jewels and officer incharge of the commercial interest of the State. Officers like the Bhates, who sang the praises of the king, the personal attendants of the kings, the composers and makers of inscription etc.

The empire was divided for administrative purposes into several provinces or Rajyas. These were again divided into subdivisions like districts, the smallest unit being the village. Each province was under a Nayak who might be a member of the Royal House or an old ruling family Each Governor exercised Civil, Military and Judicial powers with in his jurisdiction. But he was required to submit regular accounts of income and expenditure to the Central Government and render it Military aid in times of need. The Governors generally remained in the Capital cities and administered their charges through their deputies. The Province was a replica of the Empire and Provincial Governors ruled as virtual sovereigns. The uncertain tenure of office and the obligation to render account of his Stewardship acted as restraints on his wide powers.

There was a healthy vigorous system of local administration with the village as the lowest unit. Each village was self sufficient and the village assembly conducted the administration, that is, executive, judicial and police duties through the hereditary officers such as village accountant the village watchman, a Superintendent of forced labour the Begara etc. These officers were paid either in the shape of grants of land or a portion of agricultural produce. The king maintained contact with the village administration through his officers called Kahanayakacharya

who exercised general powers of supervision over the villages. Land revenue was the chief source of income.

The Vijayanagar rulers adopted the principle of differential taxation that is taxes according to the relative fertility of the soil. Besides lands tax the ryots had to pay other kinds of taxes, like grazing tax and marriage tax etc. The other sources of income for the state were the revenue from the custom duties tolls on roads etc. Taxes were paid both in kind and cash. Though taxation was heavy and the Provincial Governors and revenue officers oppressed the people there are instances to show that the people could appeal directly to the king and get redress.

The king was the supreme judge but there were also regular Courts and Judicial officers for the administration of justice. Sometimes disputes were settled by the state officers with the cooperation of the local bodies. Punishments ware severe death or mutilation, confiscation of property etc.

Military organisation.—The Vijayanagar rulers had an organised military departments under the control of C-in-C-who was assisted by the staff of minor officials. The State maintained a large and efficient army. The several component parts of the army were—Infantry—recruited from the people of different classes and creeds including (1) Muslims. (2) Cavalry (3) Elephants (4) Camels (5) Artilery.

The Vijaynagar kings were also great builders and the city was studded with a number of magnificent temples, great palaces, public offices, irrigation works etc. These buildings elicited the wonder and generous praise of the visitors of those days and it was regarded as a city "of wide spread fame marvellous for its size and prosperity with which for richness and magnificence no western capital could compare" But many of these buildings were destroyed by the vandalism of the vicitors of Talikota and today it is "vitually a vast open air museum of Hindu monuments.".

With all that has been said above the Vijayanagar empire suffered from certain defects—firstly—provincial governors enjoyed a good deal of independence which contributed in no small degree to the weakening of the central authority and led ultimately to the disintegration of the empire. Secondly the rulers failed to develop a sustained commercial activity inspite of various facilities which their kingdom had for trade. Thirdly in consideration of temporary gains the emperors allowed the Portuguese to settle on the west coast and thus undermined the stabilty of the empire in the long run.

THE PROGRESS OF GENETICS

By

G. Madanmohanrao, B.Sc., (Hons.)

What is Genetics.—" Among the numerous off spring that have been incubated and hatched by the mother science of Biology, one of the youngest and sprightliest is Genetics, a science seeking to trace the way in which the different manifestations of the unique thing called 'Life' are initiated and continued." Genetics is defined as a science that studies heredity and variation. Every biological phenomenon falls within these two limits. Every event in the life-history of animal or plant is explained in terms of inherited traits and their relation to environment. For example an elephant begets (reproduces) an elephant and not a butterfly; because there are certain physical elements which are transmitted from the parents to the offspring through the germ cells. At the same time one elephant is different from another and this i called variation. Variation is an important factor to maintain the genetical plasticity of the species and for survival under different environmental conditions. It is this variability that is used by man in selecting races of domestic animals and cultivated plants to suit his requirements. During the period of 52 years, since the study of Genetics began, it made a very rapid progress and the scientists were able to work out the material basis of heredity.

Foundations of Genetics.—LAMARCK (1744-1829), the French Philosophical Zoologist was the pioneer in heredity to put forth a hypothesis regarding Evolution and heredity. Lamarck was an unfortunate, pathetic figure in the history of Evolution as he suffered social ostracism due to his own blindness and poverty and chiefly due to the fact that his ideas on Evolution did not meet the approval of Dr. CUVIER a highly influential scientist of that time. Only after his death the truth and merit of his views were noticed by the world. His hypothesis briefly stated is as follows:

1. " Variation in organisms comes about either through (*a*) Conscious effort (*b*) reaction to a change in environment, or (*c*) effects of use and disuse ".

2. " Heredity transmits the variations thus acquired during the life time of the organism so that eventually a new or different species may arise. "

The classical example in support of his hypothesis given by Lamarck was the elongation of the neck of Giraffe. At one time according to this view in the history there was no grass on land in the forests inhabited by Giraffe and this necessiated the animal to make a conscious effort to browse on trees for foliage. For this it stretched the neck to the maximum which resulted in a long necked Giraffe due to the effect of use. This variation acquired by the animal on environmental demand had been transmitted to the offspring which are all long necked. The inheritence of acquired characters proposed by Lamarck and supported by his school of thought is a very much disputed view. Charles Darwin, the famous Naturalist with unquenchable intellectual curiosity, agreed with Lamarck, in that the characters which were handed on were acquired new within the life time of the individual. Both these pioneers in heredity recognized heredity as an important link in the explanatory chain of how diverse forms of life on this earth came to be.

1. *Darwin's Theory.*—"Variation is a universally observable occurance in nature.

2. Over production of offspring leads to a struggle for existence resulting in natural

selection through elimination of unfit and survival of the fit.

3. Heredity continues the time of the survivors with their successful qualities so that eventually a new or different species may arise.

Charles Darwin proposed a theory called Pangenesis. He assumed that there are imaginary heredity bearing particles called Pangenes and these are produced by every part of the body during the life time of the individual. The modifications acquired are impressed upon these Pangenes, which collect together eventually to form the germ cells. These germ cells give rise to new individuals transmitting the acquired characters.

August Weismann, an ardent disciple of Charles Darwin had made valuable contribution to the knowledge of heredity. He did not agree with the Pangenesis theory of Darwin and postulated his famous germ-plasm theory. According to this the living body is made up of two fundamentally different materials namely the germ-plasm and the somatoplasm. The germ-plasm is immortal which is capable of giving rise to other individuals while the somatoplasm includes the body tissues. The somatoplasm dies with the individual whereas the germ-plasm is transmitted to the offspring being such it is immortal. This theory is contrary to the Pangenesis theory of Darwin. The germ-plasm theory shows that the acquired characters are not inherited as the somatoplasm on which the characters acquired if any are impressed is mortal and will not be transmitted to the offspring.

Weismann, conducted experiments with rats to prove that the Lamarck's theory of inheritence of acquired characters is baseless. The rats have been decaudalized (i.e., tails have been cut) for 21 generations and did not notice any shortening in the tails of the offspring. This is a misinterpretation of Lamarck's theory. Lamarck said that the acquired character that is impressed by conscious effort due to constant use or disuse is transmitted to the offspring; whereas in Weismann's experiments, the cut tail is not an acquired character but only a mutilation. Mutilations are not inherited. The sons of warriors do not inherit the honourable scars of the father obtained in battle or else they would now be a race of cripples.

The following examples may be cited to show that Lamrack's theory is not fool-proof.

1. The persistent sunburn of Englishmen long resident in India does not reappear in their unexposed children born in England.

2. The skilled hand of artisan, the trained ear of musician are not inherited. Education begins and ends with the individual and this cannot be transmitted to the offspring, If it is so there is no need of Colleges and Schools at all. In any case the inherent capacity or aptitude to learn is passed on through the germ-plasm and this is not an acquisition of the body.

To explain the independence of germ-plasm Castle and Phillips demonstrated the ovary transplantation in guinea pigs. The ovary of an albino pig was removed and an ovary of a black pig was grafted in its place. On successful recovery of the animal from operation they mated this (albino pig with black pig's ovary) with a pure albino guinea pig. Six offspring all black were produced showing that the somatoplasm cannot influence the germ-plasm which is independent of itself.

Contary to Weismann's view the biologists of the present century proved that the germ plasm is physiologically related to the other cells of the body and not independent of itself. For example could defective nutrition which leads to the development of rickets affect the germ cells which contain no bones so as to produce rickets in subsequent generations although well nourished? So there is a physiological coordination between different parts of the body.

At the begining of this century however there occured a profound change in the approach to biology from a descriptive and deductive science to an experimental and inductive one: The material basis of heredity

has been worked out and numerous experiments have been conducted in the field of genetics. John Gregor Mendel, an Austrian Monk first formulated on experimental basis the primary laws of heredity. Mendel started a series of experiments in 1857 at Brunn which made his name immortal. Mendel hit a plant which is unusually well suited for his study of hereditary characters—the garden pea plant. This is an annual herb the hole generation of which can be obtained in one year and the different characters can be easily noted and it can be easily self-fertilized in a small garden. Along with peas he carried out experiments on heredity with the Bees tho' they were not successful; Yet he maintained a record of his failures also. He published the results of his experiments in 1866 in an obscure local journal "Transactions of Natural history society" at Brunn. At this time the people were not mature enough with the knowledge of genetics as the germplasm theory and the chromsomes were not discovered and so could not recognize the merits of Mendel's experiments. At the same time, the thinking world concentrated the attention on the newly published book "Origin of Species" by Charles Darwin. As the work was published in a local journal it did not reach many of the Naturalists. So Mendel died in 1884 unnoticed with the hope that his work will be recognized at least after his death. In 1900 Devries of Holland, Tschermak of Austria and Correns of Germany worked separately and published their results which closely follow the Mendel's work. Then these people brought the name of Mendel and his valuable contributions to the science of genetics to lime light. The whole science of genetics was built up on this work and enormously progressed in course of these 52 years.

Mendel's Experiments.—Mendel took a pure tall pea plant and pure dwarf plant and crossed them. The offspring from this cross were all found to be tall and are called hybrids. He later crossed two hybrids when he obtained the offspring in the following ratio 3 tall: 1 dwarf. out of these 3 tall plants one is a pure tall and the other two were found to be hybrid talls. Basing on these experiments he was able to formulate the following laws.

1. *Law of Segregation.*—The diverse paired determiners of characters derived from two parents although they may be intimately associated together in germ cells during the complicated process that preceedes the formation of the gametes before fertilization, retain their individuality and separate out uncontaminated by each other and are thus able to form new combinations when they unite to form a Zygote.

2. *Law of independent assortment.*—Most different pairs of characters that make up an organism behave independently of each other in the way they recombine to form new individuals.

3. *Law of dominance and recession.*—In every animal each character is represented by two determiners, one derived from each parent. If they are different, one of the two is apt to dominate or cover up the other. Dominance and recession therefore, by making an analysis of hybrids, furnishes the means for tracing the hereditary derivation of characters.

Mendel carried out experiments taking different sets of characters into consideration.

Cytology has contributed the material basis of heredity. All living things are divisible into the ultimate biological units called cells. The cell consists of a nucleus surrounded by cytoplasm forming the living substance called protoplasm. As Altenburg describes, the nucleus in cytoplasm is like "a lump of ice in water." The nucleus forms the vital part of the cells. This can be experimented with unicellular animals like Amoeba. If Amoeba is cut into a number of pieces, the piece containing the nucleus alone is capable of regenerating while the rest perish. This illustrates the importance of nucleus. When nucleus is subjected to stains only a part of it, is found to be stained. This is called the chromatin material (meaning coloured material). During the process of cell division which always takes place in a living cell, the chromatin material arranges itself in the form of fine thread like

masses called chromosomes. These are visible under the ordinary microscope and the number of chromosomes is always constant to the species given. They are always present in like pairs. The pairs may differ from each other in size, shape, structure and composition. In case of man there are 48 chromosomes (24 pairs) and it is so with any man. The germ cells either Sperm or ovum contain half the number of chromosomes formed as a result of reduction cell division called Meiosis. Viz, the sperm in man contains 24 chromosomes and the ovum of woman 24 chromosomes. When fertilization takes place the nuclei of sperm and ovum containing the chromosomes fuse together forming 48 chromosomes which is a constant number to the species concerned.

The biologists have succeeded in showing that the hereditary mechanism consists of numerous submicroscopic units, called genes which are located within the cells of the organism in the microscopically visible thread-like chromosomes. It is also determined that the genes are naturally stable. The X-rays and related radiations bring about changes in them. A single gene may be responsible for one or more characters or a number of genes may be responsible for a single character. The colour of the human skin, eye, intelligence, body stature etc., are expressed, by the concerned genes. The genes work as catalytic agents bringing about changes in the medium without themselves undergoing any changes. A mere possession of these genes is not a surety for the production of a character as they represent differential potentialities. A proper environment is necessary for the full expression of the characters by genes. A thorough bred horse kept under the care of a jutka owner cannot be so Likewise a plant, however potential and best it may be, cannot grow well in an unfavourable environment, as barren soil. On the contrary, the best environment alone will not suffice for the production of excellent individuals. It is not possible to make a jutka horse a thorough bred whichever care you take as regards its nourishment So the production of a particular character is the result of the interaction of the genetic material and the environment. The differences among organisms is explained in terms of differences in the genes and their action. If the genes were the fundamental reproducing particles and were responsible for all the traits exhibited by every organism, then we must regard the gene as the very fundamental biological element and the very basis of life.

The geneticists do not believe in the inheritence of acquired characters. If acquired characters are inherited the scientists would be be glad as it will simplify their task in analysing heredity.

T. H. Morgan is famous for his valuable experiments on Heredity on a furit-fly called Drosophila, which not only brought him Nobel prize but also made itself famous. Nearly 20 millions of these fruit-flies have been passed in review under the microscopes of T. H. Morgan and his cohorts. Drosophila contributed so much to the advancement of the knowledge so that the science of genetics is in danger of becoming the science of "Drosophilology".

BACTERIA

By

G. Madanmohanrao, B.Sc. (Hons.)

The exact knowledge of bacteria dates only from the second half of the nineteenth century. The famous biologist and chemist, Louis Pasteur, after labouring many years, facing ridicule and antagonism proved the existence of Bacteria. As a result of the advance of the knowledge of Bacteria since Pasteur's day, this has become an important specialised branch of science called bacteriology. Bacteriology is said a safe means of relief to man. Today the bacteriologists have developed a very intricate process and elaborate technique to isolate the individual bacteria and culture them artificially and study their biological behaviour.

The bacteria, both enemies and allies of the human race are the low plants, very important members of the vegetable kingdom. They are included along with fungi and show some resemblance to blue green algae. At times they are given a separate group called Schizophyta or fission fungi. Unlike other plants bacteria are strictly unicellular though occassionally form loose colonies. They measure from ·003 mm. to ·025 m.m. in length and so it is indeed a difficult task to distinguish them under the ordinary microscope.

Very little is known regarding the internal structure of the bacterial cells. It is a matter of doubt whether the cells possess a true nucleus and the cells internally seem to be structureless. There is some evidence however that the nuclear material and perhaps a vague nuclear body may be present. The cell wall is firm, made up of chitin and is devoid of cellulose. Many species have cilia and the number varies with the species. The cytoplasm contains various substances like glycogen, granules of volutin, fat globules etc. Bacteria occur almost in every possible situation—air, water, soil, on bodies of other organisms etc. They also can survive extreme conditions like the liquid air temperature or hot springs.

The shape of bacteria is much varied. They may be rod shaped (bacillus), spherical (micrococcus) or curved (spirillum). The metabolic rate of the cells is very high. The only type of reproduction known is simple fission unaccompanied by any complex process often taking place once every hour or even more frequently. Bacteria survive unfavourable conditions by the formation of spores. The protoplasm of the cell is withdrawn and a thick walled spore is formed. On arrival of favourable circumstances the spore germinates into a bacterial cell. Bacterial spores are often very resistent to extremes of temperature and can withstand prolonged boiling.

Bacteria can be cultured in the laboratory on various media like the meat extract, decoctions of fruits etc. Giving them the suitable conditions and temperature they multiply very rapidly. The various kinds of bacteria present in any material can be examined and separated from one another and isolated by using culture media like gelatine, agar-agar.

As bacteria do not possess chlorophyll they cannot manufacture carbohydrates; so they have to depend either saprophytically or parasitically on other plants and animals. Some bacteria which can manufacture carbo hydrates though they have no chlorophyll are called autotrophic bacteria. Depending on the nutrition bacteria are divisible into the following types.

(1) *Autotrophic bacteria* :—These live on the inorganic materials as the green plants. They obtain energy by oxidation of simple inorganic substances available in nature.

(a) Nitrifying bacteria. These are found in the soil. The two important forms are Nitrosomonas (nitrite bacteria) and Nitro-

bacter (nitrate bacteria), which are aerobic. Nitrosomanas oxidises ammonia and ammonium compounds into nitrous acid which on combination with the bases of the soil forms the nitrites. Nitrobacter oxidizes the nitrites or nitrous acid into nitric acid which with the bases in the soil form nitrates. The energy derived from these processes of oxidation is used by bacteria not only for working of the cells but also to synthesize the carbohydrates.

(*b*) Denitrifying bacteria: These are free-living organisms found in water-logged or badly aerated soil and are anaerobic. They remove oxygen from nitrites and nitrates, and hydrogen from ammonia liberating nitrogen free. This denitrification can be stopped by proper aeration of the soil.

(*c*) Sulphur bacteria; There are aerobic and occur in water containing plenty of decayed material. Important form is Beggiatoa. This takes in hydrogen sulphide liberated during putrification of proteins and oxidizes it.

$$2H_2S + O_2 \longrightarrow 2H_2O + 2S + \text{energy.}$$

Sulphur is stored as granules inside the cells and will be further oxidized forming sulphuric acid. The energy liberated during the process of oxidation is used up for chemosynthesis.

(*d*) Iron bacteria: These are aerobic and oxidize the ferrous salts into ferric salts liberating the energy which is used in chemosynthesis. Eg: Leptothrix, Crenothrix etc.

2. *Heterotrophic bacteria.*—These bacteria depend on organic substances. So they may depend either saprophytically or Parasitically on other plants and animals.

Saprophytic bacteria.—These live on non-living organic matter and ferment the fats, carbohydrates and proteins into simpler forms with the evolution of evil smelling gases. By this process of fermentation, the organic compounds are reduced to simple inorganic forms and returned to the soil where they can be used up again by plants. Fermentation of carbohydrates by bacteria finds much economic importance. The vinegar bacteria (Bacterium aceticum) convert alcohol into acetic acid; the lactic acid bacteria (Bacterium acidii lactii) cause souring of milk changing the milk sugar (lactose) into lactic acid. The putrefaction of meat is due to the agency of bacteria, which decompose protein substances.

Parasitic bacteria.—These live inside the bodies of living plants and animals and get their food materials from those living organisms. Some of the parasitic bacteria are completely harmless while a few are even beneficial. Any way a large number of these are disease—producing and harmful, called pathogenic bacteria. A particular species is the cause of each of the various diseases as diphtheria, tuberculosis, typhoid fever, cholera, pneumonia etc. in man and domestic animals. In plants diseases as pear blight, blackrot of cabbage, cucumber wilt etc. are due to the agency of pathogenic bacteria. The evil effects of these bacteria are due to the poisons (toxins) they produce. These toxins enter the blood stream of the host. The leucocytes or white corpuscles of blood resist the invading organisms by producing antitoxins which neutralise the toxins The successful resistance of the body is much improved by practice. The attacks of certain disease producing organisms may be prevented by injecting into the circulation, the blood serum from an individual (usually horse or cow) which had the disease and whose blood is rich in antitoxins. Immunity may be induced by vaccination which consists of injecting weak strain of bacteria or dead bacteria thereby inducing the blood in production of antitoxins. The English physician, Jenner first used vaccination against smallpox in 1798. The intelligent control of many diseases is through prevention of bacterial contamination of water, food materials etc. which form a means for transmission of pathogenic bacteria from one individual to another.

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MADRAS

THE COIMBATORE CONFERENCE AND AFTER

By

T. D.

The 42nd: Madras State Educational Conference was held at Peelamedu (Coimbatore) on the 15th, 16th, and 17th May, 1952. The State Educational Conference is a hardy annual. Teachers of all grades, from the primary to the university, muster strong at these annual conferences to discuss academic and administrative problems pertaining to their profession. Educational institutions send delegates to such gatherings. The Principal, the Vice-Principal, Mr. K. N. Parthasarathy and myself from the College and Messrs. Samraj Mudaliar and Arumuga Chettiar from the High school had the honour of being deputed to Coimbatore. We boarded the Cochin Express at 7-40 P.M. on the 14th May. The journey was a fright. Our train was held up at Tiruvallur for about two hours as an earlier goods train had derailed and blocked the progress of the express trains. Nor was her subsequent behaviour on the way any the satisfactory. After trials and tribulations which I am reluctant to record here, we reached Coimbatore at 1-30 P.M. i,e, six hours after the scheduled time for arrival. Fatigue was writ large on our faces. We felt like pilgrims who, in the days of old at any rate, had to undergo difficulties galore before they could reach the shrine of their seeking.

Peelamedu which is five miles away from Coimbatore was the venue of the conference. It is the habitat of the merchant princes of that great industrial town. It is also the abode of several educational institutions. Would it be incorrect to say that Laxmi and Saraswati co-exist in that region, as they seldom do? The Conference was held in the Dewan Bahadur P. S. G. Rangaswami Naidu Memorial Hall and the delegates were accommodated in the P. S. G. Hostel located near the Hall. The arrangements which the P. S. G. Charites had made for our boarding and lodging left nothing to be desired. P.S.G.'S is a name to conjure with. 'Vidayadanam' has become a fine art with them. Their benefactions are not of the 'philanthropy plus five per cent' variety; they are as altruistic as they are copious. The ancient Greeks held that property could be justified only to the extent to which it promoted social good. That is exactly the role played by modern enlightened capitalism. It has written many an inspiring page in the history of human progrees. A Lord Nuffield of England, an Andrew Carnegie of America and a J. N. Tata of India are shining examples of enlightened capitalists. May the race of such philanthropists grow "to the glory of God and the relief of man's estate!

The Plenary Session of the Conference was held at 3 p.m. on the 15th May. The delegates were assembled in the Hall in thousands. Women delegates in respectable numbers added colour to the occasion. Distinguished visitors and office-bearers were seated on the dais, with Dr. R. K. Shanmukham Chetty, the President of the Conference, resting on a cushion *a la* Mahatma Gandhi. Surely, it was an impressive sight. Dr. M. V. Krishna Rao, the Hon'ble Minister for Education, inaugurated the Conference in a speech in which he gave a clear exposition of the views of the new Congress Ministry in regard to educational problems. Dr. R. K. Shanmukham Chetty then delivered the presidential addres. No better choice could have been made for the presidentship An erudite scholar, a finished speaker, a seasoned parliamentarian, a talented administrator and a robust patriot, he has has filed many a role and played many a part

in the politics of our country. I have heard this Rupert of debate on several previous occosions and his speeches are exquisite models of masterly analysis, felicitous phrasing and scintillating wit. He was in indifferent health that day and yet he touched a very fine form. His address, which was the high-light of the Conference, showed his rare insight into the problems relating to education and educators. The warm humanity animating his observations heartened us all. It was worth going leagues to listen to such a speech. When the conference broke up at 5 p.m., we went back to our lodgings, cogitating over the observations of one of the mentors of our generation.

The second day was marked by ceaseless activity. The Conference resolved itself into several sectional conferences, viz, Basic, Primary, Secondary, University etc. The University Education Section with which we were concerned commenced its proceedings at 8 a.m. Our Principal was the President of this section. Our Vice-Principal, the convener, welcomed the delegates. I had the privilege of reading a paper on 'The alignment of School and University standards'. The next contribution was made by the talented convener who read a paper on an absorling theme, 'Teacher's Charter of Rights and Duties'. Prof. E.N. Subramaniam of the Besant College, Madanapalle started a discussion on "Financing University Education.' There were animated discussions on each one of the topics. In the course of his concluding remarks, which were at once pithy and profound, he commented on the poor attendance at the University Education Sectional Conference and urged the office-bearers of the S.I.T U. to take all possible steps to ensure a large and representative gathering on such occasions. He also held out an assurance that he would try and establish a closer coordination between the S.I T.U. and the Association of University Teachers. Dr. Tirumurthy and Sri K. S. Ramaswamy Sastriar were present on the occasion and the latter also participated in the discussions.

In the afternoon of the second day there was a symposium on the Five Year Plan, led by Prof. E.N. Subramaniam. There was another general session on the third day when the resolutions passed at the Sectional Conferences were discussed and adopted.

The S.I.T.U. has grown from humble beginnings and is today a formidable organisation, capable of delivering the goods on behalf of the teachers. Thanks to its efforts, teachers are now a respectable and respected section of the body politic, whose views receive the earnest consideration of the powers-that-be. Time was when their voice was only a cry in the wilderness; that time is happly gone, and now it reverberates in the councils of the natlon. To be brief, the teachers are an assertive, but ly no means aggressive, body. Their agitation for better status and emoluments is conducted with a decorum and dignity all their own. To borrow the expressive words of the great James Russell Lowell of America uttered in another connection, their agitation is "the revolt of intelligence" and not "the insurrection of ignorance".

Though we were engrossed in the conference the beauty spots of Coimbatore and its environs were not forgotten by us. The temple at Perur deserves special mention. Situated five miles away from Coimbatore, it attracts numerous devotees no less than sight-seers. The exquisite carvings on the pillars of the 'mandapam' near the sanctum sanctorum captured our imagination and filled us with a sense of pride in our glorlous artistic heritage.

Coimbatore, as our Principal put it, was a spring-board to us. The lure of the cool heights of Ootacamund proved irresistible. We travelled in a deluxe bus in pleasurable anticipation of the happiness that awaited us From the sun-kissed plains to the snow-covered regions it was an agreeable transition. The cool, crisp morning air, laden with the fragrance of flowers and the aroma of eucalyptus seemed to extend a hearty welcome to us. I wish I had the inspiration of a poet to describe her stately peaks and sparkling lakes, colourful gardens and comely bowers, graceful retreats and glorious promenades. Under the fostering care of the Britisher, the abode of the

pastoral Todas had blossomed out into the summer capital of the Madras Government. Vying with their political master, the Indian princes contributed their share in making her a beauty spot. Their artistic palaces nestling in the glens and dales lend a patrician touch to the atmosphere. Not for nothing has she been called " the Queen of the Hill stations ".

During the four days of our stay at Ooty, we visited several places of interest. The Pykara Power Station is 17 miles away from it. The pipelines laid across precipitous paths are a triumph of engineering skill. Here is an instance of how Man has tried to unravel the mysteries of Nature and harness Her tremendous energy towards creative ends. The primitive man stood before Her in awe and wonder; his modern counterpart analyses and comprehends Her laws and is the lord of the earth. The Pykara project is a bright feather in the cap of Sir C. P. Ramaswami Iyer, one of our most versatile and accomplished publicists of recent times. The Todas with their quaint customs, the public school at Lovedale with a thoroughly English set-up, the Silk Farm and the Pasteur Institute at Coonoor and the wind-swept valley of Ketty also came within the ken of our observation.

One of the inestimable advantages of the British rule was the emphasis placed on health resorts as an aid to rejuvenate the body and mind of humam beings. With the withdrawal of that rule, Ooty has fallen on evil days, though not on evil tongues. The stoppage of exodus of the Madras Government during summer and the vandalism of man in denuding her of her forests have robbed her of her pristine grandeur. Ooty deserves the limelight, and not the limbo of oblivion. Let us conserve the legacy that the Britisher has left us.

Now an aside. I have an extra adipose tissue. I am not a Falstaff, though. Naturally, therefore, I fought shy of steep or stiff climbs and preferred to see others do the trick. But no, the Principal would not let me have my way. Climb I must and climb I did. He would lend me a helping hand whenever I sagged. I was reminded of Milton's lines on such occasions:

" Love Virtue ; she alone is free,
She can teach ye how to climb
Higher than the sphery chime ;
Or, if virtue feeble were,
Heaven itself would stoop to her "

On the fifth day Nature frowned on us as we hurried out of Ooty. Our next destination was Mysore. Cowper sang: God made the village; man made the town. If we saw Nature's variegated mantle spread over the Nilgiris, we witnessed the brilliant pageantry of man's creations in Mysore. The sculptor and the painter, the engineer and the town-planner have transformed Mysore into a veritable fairy-land. On the threshold of the City stands, in massive grandeur, the Chamundeswari Hill, the abode of the presiding deity of the historic state of Mysore-At the sight of this magnificent spot, our mind travels back to the Fifth Century B.C. when in the Periclean Athens the statue of Athena in gold and ivory rested in regal splendour in the Parthenon built on the Acropolis, The Royal Palace, the Jaganmohan Art palace, the Lalitha Mahal or the State Guest House, the boulevards bordered by trees, the well-laid roads flanked by ornamental lights, the parks exuding fragrance and health—all these seem to be the tributes laid by the people at the feet of Sri Chamundeswari, their divine sentinel. Turn which way you may, you see form, symmetry and pattern-Well might one exclaim: Art, Thy name in Mysore.

She is rich in natural resources. Kolar Gold Fields, sandalwood forests, Badravati Iron Works, and Krishna Raja Sagar Dam represent the great milestones on the road of her economic progress. Thanks to an uninterrupted succession of talented Diwans like Mr. C. Rangacharlu, Sir K. Seshadri, Sir Mirza Ismail and Sir A. Ramaswami Mudaliar, she is in the vanguard of the progressive states of India.

We visited Seringapatam, the place where Tipu Sultan died fighting like a true hero. The Gumbuz which houses the last remains of Haider, his wife and Tipu, and the Daria Daulat, Tipu's palace, stand there desolate but recall many, poignant memories of a by-gone age. The Ranganathaswami Temple at Seringapatam is a famous shrine.

Bangalore was the next item in our itinerary. We left Mysore on the 23rd May, her glorious scenery and achievements still holding us in thrall. Bangalore is only an under study to Mysore. We went there—not so much, to see the Tata Institute of Research nor the Hindustan Aircraft Factory much less the zoo, as to see our respected Sri P. Ramaswami Chetti recuperating in the bracing climate of Bangalore. We spent two happy days in the inspiring company of our Engineer and returned to Madras on the 26th May.

We in this college work hard and none works harder than our Principal. After a strenuous year's work, we all desired, nay. deserved rest. Our trip has toned us up, mentally and physically. We are ready to accept the challenge of another year of hard work in the service of our beloved Sir Theagaraya college.

SIR THEAGARAYA COLLEGE, MADRAS

PRINCIPAL'S REPORT FOR 1951-'52

I have pleasure in presenting the 2nd annual report of the College for the year 1951-'52.

The College reopened on the 25th June 1951. The University authorities were pleased to grant further affiliation in Hindi under Part II and in Natural Science and Indian History respectively under Part III. The strength of the College now is 523, and the distribution of strength in the various groups is as follows :—

	Gr. I	Gr. II	Gr. III
Class I	100	60	120
Class II	147	—	96

Under group I, we offer Mathematics, Physics and Chemistry, under group II, Physics, Chemistry and Natural Science and under group III either Ancient History, Modern History and Commerce or Modern History; Indian History and Commerce. Under Part II, Tamil, Telugu and Hindi are offered. There was a rush as usual for admission. Particularly groups I and II attracted most of the applicants. But as the maximum in the Science groups was fixed as 160 by the University, many had to be refused seats. One of the principles adopted in admission was students from schools in North Madras like the Muthialpet High School, Hindu Theological High School, Tondaimandalam High School, Abdul Hakim High School and R. B. C. C. High School, Perambur were given preference. In fact, one of the compelling reasons for the Trustees starting a College in Washermanpet was to cater to the special and urgent needs of North Madras. Their expectations have been fulfilled beyond measure. The College started working in full strength even on the day of reopening.

Finances.—The College is not self sufficient in respect of funds. The annual income of the College from tuition fees is in region of Rs. 85,000/-. Administration charges amount to Rs. 75,000/- roughly. Again there has been the capital investment on bulildings, furniture, books and scientific equipment during the past two years. As against this, we have received donations and a token grant of Rs. 20,000/- from Govement. Yet we are faced with a deficit of Rs. 48,000/- nearly. Further there is the commitment to the University to deposit three lakhs by June 1952. Hence we have been urging Government again and again to grant us a block grant of Rs. 2 lakhs and help us to tide over the crisis and stabilise the institution. As suggested by our learned Vice-chancellor yesterday in his Presidental address to the University Teachers' Association, the Central and State Governments have to encourage University Education by a substantial subvention.

Buildings.—So far our building requirements have been met. Last year all the College classes were run in the Sri Venkateswara Building. But with the opening of Class II, the Assembly Hall in the main building called the Sri Ponneri Sriramulu Chetty & Co. Hall was partitioned as per the recommendations of the Univesity Commission, and the English classes of both the Junior and Senior Intermediate were accommodated here. This is only a temporary measure to relieve shortage of rooms. With further increase in accomodation, the Assembly Hall will be reserved only for meetinges and entertainments. Actually the Trustees of the College started building a new science block to the south of the existing buildings. The Hon'ble Mr. B. Gopala Reddi, the then Minister for Finance, laid the foundation stone. The construction reached almost ceiling level, when work was stopped owing to short supply of building materials. Now the situation has improved and with financial help from Government, the science block will have to be completed by June next as per University directions to house the Intermediate Natural Sciεnce Department. If the College should become first grade, more class-room accommo-

dation would be needed. In such an event, the High School which is functioning at present in the same compound will have to be shifted, and proposals arg being worked out towards this end.

Library.—The library is located in the Central building, which is the administrative block. It contains nearly 3000 picked volumes, and about 1000 are in the English section. The library is growing a pace in quantity as well as the quality of books procured, thanks to the keen interent evinced by the Trustees, and next year it will have to be shifted to a more spacious hall. The library is well utilised by the students of the College. The number of books borrowed during the year was 11,909 and the number of consultants 6916. The reading room is located in the library itself, and is supplied with up-to-date English, American and Indian Journals, Magazines and Newspapers. The British Council and United States Information Service have been generous enough to supply us free of cost some of their valuable publications, and have also thrown open their respective libraries to our students.

Hostel.—The College Hostel was functioning in rented buildings till October last. Since then a new building to accommodate 70 students has been constructed in record time on the College estate near the Korukkupet Railway Station. The inmates, who number 50, are now comfortably lodged, and the mess is run on the dividing system for vegetarians and as well as non-vegetarians. The Vice-Principal of the College is the Warden and another member of the staff has been appointed Resident Tutor to act as 'friend, philosopher and guide' to the students. The Trustees of the College have realised the imperative need for a hostel in as much as mofussil students are being admitted every year in the College in large numbers; they have made haste to satisfy the needs of such students and also the regulation of the University, namely, that no College should be established without the adjunct of an hostel. More than Rs. 80,000 has been spent on the Hostel building and application has been made to Government for a building grant.

Staff.—There are now 26 members on the staff including the Principal. The College has been fortunate in securing the services of able and experienced lecturers, who have been taken in on a permanent basis. It is the Tutors and Demonstrators, who make their respective posts, perhaps naturally, stepping stones to more lucrative and promising appointments elsewhere. Messrs. M. Swaminathan, B SC., A. Srinivasan, B.SC., Demonstrators in Chemistry and Physics respectively and Messrs. M. V. Thiagarajan, M.A., and P. S. Venugopalan, B.A., and and M. Balamannar, B.A., Tutors in English and Mathematics respectively, have left us in the course of this year. Consequent on the formation of the 2nd Class, the following new lecturers, Meesrs. M. Boothanathan, M SC., Physics, M. Satyanarayanaswamy, M.SC., Chemistry, G. Madanmohan Rao, B.SC. (HONS), Natural Science, Miss Neela Mudaliar, M.A., History, and Mr. K. Rajagopalan, Hindi, have been appointed. The following new Tutors and Demonstrators have also been appointed. Messrs. P. Natarajan, B.A., and T. Dorairaj, B.A., for English, Mr. C. Radhakrishna Sarma, B.A., for Telugu, Mr. T. Radhakrishnan, B. COM (HONS) for Commerce, Mr M. Athmaram Rao, B.SC., for Natural Science and Mr. K. S. Vital Das, B S.C., for Chemistry. Mr. M. Sreeramulu Chetty, M.A.,L.T., Lecturer in English was made Vice-Principal of the college to relieve the Principal of some of his administrative responsibilities. The staff have striven not only to inculcate knowledge as such in the minds of the students but also shaped and moulded character conforming to the ideal for which the College stands i e, "Sweetness and Light". So under their fostering care, they have grown in to a single community of scholars, breathing the spirit of love and fellowship and moving forward unswervingly on the path of sterling conduct, selfless devotion and sound schorlarship. Discipline is the bond that unites them in their common endeavour. It is the discipline of love and not that of fear.

Tutorial System.—Working as we do 'loco parentis', we have adopted the Tutorial System of making a personal approach to every student in the College in his own setting. Each member of the staff is entrusted with nearly 25 students, whose progress at College in all departments he is to watch, study, and report on. Besides the tutor has to inspect the home of the student and advise the parent or guardian in regard to home conditions. Though it is difficult to operate the Tutorial scheme because of the additional strain to which the staff members are subjected, yet we are happy to say that it has yielded excellent results and both students and parents have recognised and appreciated the value of it. For several erring students have been brought back to a sense of of duty and rectitude, and set firmly on the road to progress and proficiency. The labours of the staff in this direction, to say the least, are highly commendable.

Extra curricular activities.—We in this College have realised that education imparted within the four walls of the class-room must be supplemented by extra curricular activities to make such education fruitful and lasting in its wholesome effects. To achieve this object meetings, debates, filmshows, dramas, excursions, picnic parties,, cultural visits and social service activities have been organised to enable students of the College to cultivate their special talents and attributes, and also establish a close coordination between life around and life in the College. A big dramatic festival was held in August last, mainly arranged by the authorities of the College. It served a double purpose. It helped to augment the funds of the College and also provided scope for some of our students to act on a public stage. For the College has established a histrionic tradition. Only last month i.e. the 3rd of February our talented actors put on boards at the Museum Theatre Shakespeare's drama "Julius Caesar". which luckily happens to be their University text as well. The various College Associations have held meetings to celebrate the birth-days of poets, statesmen, scholars and scientists of all countries, inviting learned lecturers from other Colleges and institutions to speak and also arranging for suitable film shows and entertainments on those occasions. Our students, though young and immature, when compared with students of other Colleges, have never failed to take part in all Inter-Collegiate debates and competitions and even in contests held by private bodies like the Y. M. C. A. and Y. M. I. A. In the Pachaiyappa's Inter-Collegiate competition for the best one-act play in Tamil, our students distinguished themselves. One of our students secured the first prize in the Sachivottama Sir C. P. Ramaswamy Iyer oratorical competition organised by the Y. M. C. A. Rayapettah.

Bulletin.—The College has introduced an innovation by replacing the Magazine, which was an annual feature, with the Monthly Bulletin. Apart from the novelty of it, the Bulletin serves not only the literary interests of the students but also provides them with copious reference material and explanatory notes, in respect of their studies in all departments. In short one of the aims of the College is to promote creative thinking and writing among students, and it is no exaggeration to say that this has been more than realised, for very interesting and orginal articles of literary and scientific value have been contributed by the students.

Sports and games.—The College does not possess the requisite play ground facilities at present. Of course, our boys play most of the important games like Football, Hockey, Volleyball Cricket and Badminton. Games like Basket-Ball and Tennis have to introduced. The authorities of the College have applied to the Collector of Madras for acquisition of vacant sites to the east of the College. If this materialises students could be assured of more facilities. Nevertheless, our boys have competed in most of the Inter-Collegiate tournaments. Also they have gone on a tour to Madura, Virudhunagar, Tinnevelly playing matches against local College teams. It was a sports tour as well as an excursion, in which more than 40 students took part besides some staff

members. There is one crying need of the College and that is the formation of the National Cadet Corps contingent. It is only the Government that can fulfil our wish in this matter and help our boys to receive the military training, which is so vital to national advancement to-tay.

Social Service League.—The work of the College Social Service League deserves mention, though it comes under the extra-mural activities of the College. A trained member of the staff is in charge of it. Some of our students have also undergone a course of training in Social Service conducted by the Madras Students' Social Service League and have received certificates. Besides helping in all College functions and organizational activities, our leaguers visit orphanages and slums to do social amelioration work. They are now engaged in such work in a colony in Korukkupet called "Swathantrapuram". An adult education class is run in the evenings in a thatched shed, specially put up by the College. Government recognition has also been sought for the school. Two more members of the staff have been deputed this year to undergo training in the Summer School run by the Director of Public Instruction. Our league has also cooperated with the workers in sister institutions.

Future.—Ours is now a full-fledged second grade College. Its activities educationally and otherwise are many-sided. It has made itself useful and indispensable to North Madras. It is presenting the first batch of students for the Intermediate Examination of the University of the 20th instant and it is hoped they will give a good account of themselves and add lustre to the College, which proddly bears the name of Sir Theagaraya a great social worker. The outgoing students after passing the University test, are anxious to resume their studies in this College. But it is not possiple to start degree course next year owing to technical difficulties that lie in way. We have no doubt fulfilled the conditions, excepting one imposed on us by the University authorites for running this College. And that is the endowment. We require at least three lakhs immediately. We are hard put to find this amont. We have buildings, furniture, equipment and even building sites for further expansion, but we need sinews. As pointed out earlier, we have approached Government for a block grant. Only with substancial help from Government the College can forge ahead. It is our humble prayer that Government will discharge their duty by the citizens of North Madras, who are truly backward in all spheres.

I wish to conclude by thanking the Trustees of this College for all the kind advice and generous co-operation they have been giving me in administrative matters, my colleagues for their earnest endeavours to maintain high educational and cultural standards and my office staff for the efficient, conscienious and cheerful manner in which they have always discharged their duties. Finally I wish to thank the University authorities for the support and encouragement they have been consistently giving us in our attempts to provide a liberal collegiate education up to the Intermediate level in this part of the city. And let me also make this fervent appeal to all philanthropists and charitably disposed persons that they should come forward in greater numbers to aid this Institution and perpetuate the good work so unostentatiously and selflessly started by the Theagaraya Chetty family in the last century. May this institution blossom into an Honours College soon, setting up the highest academic standards and securing the best intellectual equipment for the largest number in the land!

SIR THEAGARAYA COLLEGE, MADRAS

The following students of the College have passed the Intermediate Examination held in March 1952 :—

I Group.

1. G. Achuta Rao,
2. N. Balasubramanyam,
3. T. V. Balasubramanyam, I Class
4. V. N. Balasubramanyam, I Class
5. Y Balasubramanyam, I Class
6. M. K Balasundaram,
7. C. H. Bhaghavandas
8. G Bakthavathsalu
9. R. S. D. Charles
10. T. R. Devarajan, I Class
11. B. A. Dhandapani, I Class
12. K. Dorairaj
13. K. Ganapathy
14. R Ganapathy, I Class
15. M. Gopalakrishnan
16. B S. Gurunathan, I Class
17. P. Guruvappa
18. M. Kanakasabai
19. T. C. Kanniappan
20. P. R. Kasinathan
21. R. T. Kasinathan, I Class
22. T. V. R. Krishnamurthy
23. P. Krishnamurthy, I Class
24. D. Kumaraswamy, I Class
25. V. Lakshminarasimhan
26. C Lakshminarayanan, I Class
27. K. Nagoor, I Class
28. P. V. Narasimhamurthy, I Class
29. R V. Narasimham, I Class
30. V. N. Narsimhan, I Class
31. K. Natarajan
32. V. Padmanabhan
33. N. Palani, I Class
33. H. S. Paramasivan
34. K. Parthasarathy, I Class
35. M. Parthasarathy
36. P. R. Parthasarathy
37. A. R. Radhakrishnan
38. S. Raghupathy
39. P. N. Ramachandran
40. C. Ramachandra Rao
41. R Ramadas
42. P. Ramakrishnan, I Class
43. V. N. Rammohan
44. V. R. Sankaran
45. P. Saratha Reddy
46. R. Sivagnanam
47. D. Sivaprasada Rao
48. S. Sivasankaran
49. A. Srinivasamurthy
50. K. Srinivasan
51. K. Y. Srinivasan, I Class
52. K. Srihari Narasimha Rao, I Class
53. K. Sripathy
54. Y. Subba Rao, I Class
55. G. Subbarayadu
56 G. Vallabaram I Class
57. E. D. Veeraragavulu I Class
58. V. Venkataraman
59. B. R. Viswanathan I Class

IIIrd Group

1. P. N. Balasubramanyam
2. K. G. Govindan
3. M. V Janakiraman
4. T. Jayarajan I Class
5. G. Kannan
6. F. A. Khadır Batcha
7. A. Krishnamurthy
8. M. Krishnaswamy I Class
9. K. Kumaravelu
10. P. S. Mani
11. A. Muthukrishnan
12. G. M. Nagarathnam
13. K. Nandagopal
14. E. Natarajan
15. P. Radhakrishnan
16. V. Radhakrishnan
17. A. V. Rajagopalan
18. V. Rajasekaran
91. A. Ramachandran

20. B. C. Ramani
21. S. M. Raman
22. N. V. Ramakrishnan
23. S. Sampath
24. P. G. Sankara Narayana Raghavan
25. K. Sethunarayanan
26. K. Shankar
27. C. M. Somasundaram
28. M. Srinivasan
29. K. Srinivasa Raghavachari
30. M. P. Srinivasan
31. S. Srinivasulu
32. Srinivasa Rapoor
33. T. Sripathy
34. N. Subramanyam I Class
35. B. Subramanyam I Class
36. T. V. Subramanyam
37. Syed Quersheed Hussain
38. N. Tej Singh
39. C. S. Venkataramanan
40. T. S. Venkataraman
41. S. Venkatesan
42. G. Visvanathan

பிச்சைக்காரி

எம். நடராஜன், I-வது வகுப்பு, II-வது பிரிவு,

பஞ்சாயத்தில் பல நாள் தலைவராய்
இருந்து பொதுத்தொண்டு இயற்றவோர் இப்படி
அனாதைப் பெண்களை அவதிப் படுத்துதல்
கொடுமை! கொடுமை!! கொடுமை யாமே!!
கொய்த ரோஜா குணத்தில் மாறாது
வாடும் வரையில் வீசிடும் அன்றிக்
கொடியில் இருந்து கொய்த வுடனே
மணத்தை இழந்து மங்குவ தில்லை
கொய்த மலராய்க் கொம்பனைக் கற்பகம்
ஆதா ரின்றி அண்டி வாழினும்
ஊதாரி யாக உவந்திடு வாளா?
பெண்மை தன்னைப் பேணிக் காக்கும்
தன்மை யினின்றும் தவறினாள் இல்லை
விமலன் செயலாய் வேதனை கொண்ட
கற்பகம் நெஞ்சம் கலங்கிப் போனாள்!
பதவியில் உன்னதப் பேயன் விமலன்
அச்சம் இன்றி அனைத்தும் செய்வான்!
என்று மனதில் எண்ணிய அவளும்
அவ்வூர் வாழ்ந்தால் ஆபத் தென்று
கருதினள் அன்றே கிளம்பினள் வெளியூர்!
பலநாள் அவளும் பட்டினி யாக
இருந்து கழித்தாள் இறுதியிற் பிச்சை
எடுப்பதைத் தவிர எதுவும் தோன்றிலது!
அடுத்தாள் பலரை அதுவே அவளின்
வரலா றிதைத்தான் விளித்தாள் கற்பகம்
கற்பகச் செம்மலர் கழன் றதைக் கேட்ட
ஆச்சி மிகவும் அன்ப தாக
" கவலை தொலைத்து கற்பகம் நீயும்
இருந்திடென் வீட்டில் இன்பமுட னேயான்
வருந்திலேன் உன்னை வளர்த்திட " என்று
மொழியக் கேட்ட மலர்விழிக் கற்பகம்
வழிந்திடும் புன்முறுவ லுடனே " அம்மா!
காத்து வளர்த்திடக் கருதிய உண்மை
எத்தித் துதித்துயான் எந்நா ளும்மிகப்
பணிந்து வாழ்ந்து பணிபுரிவே 'னென
அணிந்தாள் மாலை அரிவை சொல்லால்!
ஆச்சி நல்லாள்; அழகி கற்பகம்
பேச்சில் முத்துப் பிரட்டிடு பவனோ
என்றெண் ணிப்பலர் ஏமாந் திடவும்
ஊன்றிய பற்களை உடைய அதனைக்
குறையொன் றின்றிக் குணமாய்ப் பேணி
வரைந்த ஓவியம் வகைதான் கெடாமல்
வைத்துப் போற்றி வருவதின் மேலாய்க்
காத்து வந்தான் கூலி செய்தும்
ஆச்சி அவ்வூர் 'அரசனாய் வாழ்ந்த
தச்சன் சுப்பன் தாரமாந் தெனினும்
சுப்பன் வீட்டின் சாதா ரணக்கூலி
ஒப்புர ஒழுகென ஓதிய பெரியோர்
சொல்லை அப்படியே தட்டி நடப்பதில்
இல்லை ஈடு எவரும் அவனுக்கு!
சுப்பனுக்கு அவ்வூர் சுயபோக வுரிமை
எப்படிக் கொடுமை எழைட்க கிழைக்கலாம்
தப்பை எப்படிச் சுமத்தி விடலாம்
என்பதே அவனுடைய எண்ணமும் தொழிலும்
அன்பெனும் பொருளில் அணுவும் அறியான்
பஞ்சா லையிலும் பலவுண் டொருமுறை
பஞ்சப் படிக்குக் கெஞ்சிய மக்கள்
வெறுக்கப் படவே வேலை நிறுத்தம்
செய்திட அவர்களின் தலைவனாய் வாணன்
திட்ட மிட்டு மிகத்திட மாய்நடத்த
தஞ்ச மடைந்து தந்தான்! அன்றே
" தங்கை மகன்நீ தகாத காரியம்
எங்கள் குடும்பம் இழிவ தனக்குச்
செய்தாய் " என்று சென்றிடுன் உறவைக்
கொய்வேன் " என்றான் கொய்தே விட்டான்
வேலை இழந்து வாடிய வாணன்
வேலை தேடி வெளியூர் சென்றான்
' பாம்பே ' தன்னில் பிரபல நிலையம்
ஓம்ப அவனும் ஒப்பினான் அதையும்
செல்வம் தன்னுடைய நிலைதை தன்னில்
பல்வள முடனே பாரோர் போற்ற
வாழ்ந்த தமிழர் வயிற்றுக் கின்றி
தாழ்ந்த நிலையுடன் தரணியில் வாழ

(தொடரும்)

పరిత్యాగము

రచన : పిచ్చుక శివయ్య, రెండవ తరగతి

[మాంచాలచేఁ బ్రబోధితుఁడై బాలచంద్రుఁడు సోదరులతోఁ బరివారముతో 'గులపగ' దీర్చుటకుఁ గార్యమపూడి కదనరంగమునకుఁ గదలిపోయినాఁడు. అనపోతు బ్రాహ్మణయువకుఁడు, బాలచంద్రునికిఁ బ్రాణమిత్రుఁడు, సోదరుఁడును. యుద్ధమున ననపోతు మరణించినచో బాలచంద్రునికి బ్రహ్మహత్య యంటు నని మాంచాల యతని నెటులైన వెనుకకుఁ బంప మని మగని నర్థించినది. పరివారముతోఁ ద్రిపురాంతకము చేరినతరువాత బాలచంద్రుఁ డనపోతును బిలిచి ముత్యాలగళమాల, ముద్దుటుంగరము మఱచి వచ్చితిని తెమ్మని మేడపి పంపును. హద్దు దాఁటి రావలదని యచ్చటి రావిచెట్టున కొక శాసనపత్రముఁ గట్టి, యానవెట్టి బాలచంద్రుఁడు తరలిపోయినాఁడు. మేడపిచేరి యనపోతు పరాభూతుఁడై నిజము తెలిసి త్రిపురాంతకమునకు వచ్చినాఁడు.]

ఏడి యెచ్చట నాదుస్నేహితుఁడు బాల
చంద్రుఁ డాతనికొఱకయి చాల డస్సి
వచ్చుచున్నాఁడ నిచట నెవ్వారి నడుగ
వానిజాడను దెలిపెడివార లేరె!

ముందు పోయిరి గుంపుగుంపులుగ ననుచు
జెప్పుదురె కాని యీపురిఁ దెలుఁగుజనుల
నొక్కఁడైనను స్నేహితునునికిగూర్చి
విశదముగఁ జెప్పువార లీపేట లేరె?

ఔర! యిదేమి? రావితరువందున నుండినపత్ర మేమి? యీ
తీరున వ్రాయవ్రాఁతలలతీరు లవేమి? నిజంబె సర్వ మా
ఘోరరణంబునందు ననుఁ బ్రియసోదరబంధువర్గముల్
పోరఁగ వారితోడుతనె పోరఁగ నోఁచనిజన్మ మేటికో!

ఆఁకలిదప్పులెంచక యయాజ్ఞను దీర్పఁగఁబోయిబోటులన్
లోకువ యైతి సిగ్గు మదిలో విడి రాఁగనె గోరుచుట్టుపై
రోకటిపోటుచందపునిబాధిని దెల్పుచు నున్నయట్టు లీ
వాకొనరానిఘోరవిషవార్తను నే వినువాఁడ నైతి నే!

న్యాయమె నీకు రావితరువా?
యిటు సేయఁగ నేరికై న-నీ
ప్రేయసి సౌఖ్యదాయి యగుకేపచెలి
న్విడఁజేసె దైవ మం

చాయమబాధ నాతలను నంటఁగ-
నాగ్రహ మంటువ్యాధిగాఁ
జేయఁగ నెట్టు లొప్పె వినఁ జెప్పుము
వీనులవిందు గూర్పఁగా!

నీదరి నాశ్రయించు నెడ నేర్పున
నక్కునఁ జేర్చి యెంతయో
సాదరబుద్ధితో జగపుజాతరఁ
బాపఁగ బుద్ధిరీతిగా
నేదియొ మంత్రతంత్రముల నెంతయు
నేర్పుదు వంచు రాఁగ నీ
వాదరణంబుఁ జూప కనయంబున
రోదనఁ జేయఁ జేయుటల్.

చెన్నుని యానలా? కదనక్షేత్రమునం
దరిభంజనంబుకై
యన్నరదేవు నాన యట-హా! యటు
చేసిన ద్రోహి నంట వా
రన్నలగామధూపతిని నాహవమందునఁ
జీల్చి చెండఁ గ్రో
ధోన్నతి నేఁగి రంట యయయో! విధి
దాఁటఁగ శక్యమే భువిన్.

ఒకకంచమునఁ దిని యొకమంచమునఁ బండు
కొనుటలు నేఁటితోఁ గూలె నేమి?
యొకరీతిగాఁ గట్టి యొకచోటనే పెట్టి
సరసోక్తు లాడుట చాలె నేమి?
యొకచోటఁ జదువుచు నొకబాట విడియుచుఁ
బద్యముల్ వల్లింపఁ బాసె నేమి?
యొక్కవస్తువుతోడ నొకచోట నొకనీడ
నాడుట కీనాఁటి కంత్య మేమి?

దేహములు వేఱె యైనను దివ్య మయిన
మనసు లొకటియె యంచు నే మనమునందుఁ
దలఁచుతలపుల కంత్యమే దాఁపురించె
నేమి? యేమందు కూర్మిస్నేహితుఁ డిదైన!

చెప్పినకార్య మెన్నఁడును జేయక
యుంటినె? నేరుగానె నీ
విప్పలు కాదుచోట మను నెట్టులనైనను
వీఁడి వచ్చుటో
యొప్పక యున్న నిచ్చటనె యుండుటో
యైనను చేసియుందు నే
యిప్పటినాదుచింత మది నింతగ నుండక
పోయి యుందు నే.

మంచితనంబుగానె పలుమాటలఁ
జెప్పుచు, నానవాళ్ల న
న్వంచనఁ జేయ నెంతో వినువారలు
నమ్మగఁ జెప్పినాఁడవే
యించుకయైన నెంచక విహీనమతిన్
ననుఁ బంపి బోటులన్
వంచగఁ జేసి తిత్తల నివారణఁ
జేయఁగరానిపిగ్గుతో.

నీవే తల్లివి నీవె తండ్రి వనుచున్
నీవే గదా మిత్రుఁ డం
చీవే సోదరుఁ డంచు సర్వ మనుచు
న్నే నమ్మియున్నాఁడ నే
యూహంతేనియు నెంచకే మదిని నీ
నాతీయనం జేయఁగా
నీవే యోచనఁ జేసి నిందుమదిలో
నీతైనఁ జెల్పంగదే!

"కనఁగ బాపఁడు! కదనరంగమున వీఁడు
ప్రాణములఁ బాయుచో నాకుఁ బాప మంటు"
నంచు రాతిరి కల గంటివా? నిగూఢ
బోధఁ జేసెన? మాంచాలబోటియువతి.

చెప్పుడుమాట లబద్ధము
లిప్పగిదిని బల్కు పలుకు లెల్ల నసత్యం
బెప్పుడు కల లనృతం బం
చొప్పఁగ నీ వెఱుఁగలేదొకో? చెయేలా!

అన్నము పున్నె మెఱుంగక
తిన్నఁగ మార్గానఁ బోవఁ దెగఁగొట్టుచు నే
మెన్నక మదిలో బాపని
సన్నగఁ జంపుటయె కిల్బిషం బౌఁ గాదే!

సకలవర్ణాలు - వారలు చక్కదిద్దు
కార్యములఁబట్టి యేర్పడెఁ గాన - కదన
రంగమున శత్రుసేన విరామ మేది
తెగ నఱకువాఁడు కాఁడె క్షత్రియుఁ డనంగ.

తొలి మనభారతావనినిఁ దోరముగాఁ
గురురంగమధ్యమం
దలసట నెంచకే మదిని నచ్చటి
వారలతోడ ద్రోణుఁ డే
తలపును లేక పోరఁడె? మదంబున
శౌర్యము గల్గి పోరువా
రలవలెఁ బోరఁడే పరశురాముఁడు
క్షత్రియరాజరాజితో.

కదనమునందుఁ బోరి నలగామునిఁ జీరి
ముదంబుతోడ నె
మ్మదిగ దురాత్ములౌ అయినమాయల
మారికుతంత్ర మంతయున్
జరుపఁగఁ జేయఁగా మదిని సారెకుఁ
గోరిక యూరికెత్త-నీ
యదనున నిట్లు చేయఁదగునా?
ప్రియమిత్రుఁడ! బాలచంద్రుఁడా!

తింటిని వారలసొమ్మును
నంటఁబట్టంగ వారిపనులఁ గ్రమముగా
నంటుకొని చేయ కిటు తిను
నింటికి పాపాలు లెక్క యిడ ధర్మంబే!

పూర్వజన్మమునందున పాపముఁ గూర్చి
ప్రాణమిత్రుల వైరము ప్రబలునట్లు
చేసియుంటిని గాఁబోలుఁ - జేయకున్న
నిటుల జరుగునె యెన్నఁటికేని భువిని.

పొంగుచుఁ బొర్లుచుండెను గవోష్ణపు
నెత్తురుటేరు నీరుగా
నింగికి లేచుచున్న దన నెమ్మది
శౌర్యరసంబు పేర్చి నా
యంగము లన్ని నిండుకొనఁగా! నిఁక
నూరుకొనంగ నేర్తునే!
వెంగలివోలెఁ గార్య మవివేకము
తోడుతఁ జేయువాఁడనే.

రక్త మగు నేమి? నిజబంధురాళి యాజి
నటుల యిటు లగుఁ బ్రాణము లంచు నెంచి
స్వీయపు వాక్కులకై పోర సాయపడని
రక్తమును రక్త మేమి? నీరంబు కాని.

సోదరు లీడి యుండ మన సొప్ప దిఁ
కొక్కని మేమమైన నీ
మేదిని - యన్నయాజ్ఞలను మీఱినఁ
బాపము మీఱిపోవు - నా
కేదిఁక దిక్కు రెండుపను లింపుగఁ
జేకుఱు నాత్మహత్యచే
నేదయుఁ దీరుఁ గాన నిది సేయుట
మంచిగఁ దోచెడి న్మదిన్.

ఏదకా? బాఱెడంగలను నేఁగుచునుండె
రయంబుతోడ మా

మాదచి, యెంచి చూడ ననుమానము
లేదిఁక యుద్ధభూమినే
కూడఁగఁ బోవుచుండె మదిఁ గూరిమి
జాలుకొనంగ వేర్పుతో
వేఁడెదఁ గాక తెల్ప మదివేదన
యంతయు బాలచంద్రుతో.

మాదచీ! నాదుసోదరమండలంబు
ననికిఁ బంపించి నే నిట వనరుచుంటి
నీకు మక్కువ నామీఁద నెగడెనేని
బాలచంద్రున కిట్లని పలుకు మమ్మ!

పోరునఁ జీరువట్టియవపోతు
నిజాగ్రజునావ మీఱఁగా
నేరక జీర్ణభావనల దృక్కులఁ గ్రుళ్ళి
కృశించిపోయి యీ
తీరున నుండుచుండె నని తెల్పుము-
సోదరురాలి కోసమై
పాఱక స్వర్గవీధిని పచారులఁ
జేయుచునుండె నంచు నన్.

చెన్నునిగూర్చి ప్రార్థనలఁ జేయుచు
బంధులఁ దల్లిదండ్రులన్
సన్నుతిఁ జేసి నిండుమది సంతసము
స్వేదజల్లుమోముతో
మిన్నను ముట్ట నాయశ మమేయముగా
నిడుచుంటి జంబె మా
యన్నకు నిమ్ము నాశిరము నాదటఁ
గైకొని పోయి మాదచీ!

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